

Mathematics Grade 2

By:

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Online:

< <http://cnx.org/content/col11131/1.1/> >

C O N N E X I O N S

Rice University, Houston, Texas

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Chapter 1

Term 1

1.1 Friends¹

1.1.1 MATHEMATICS

1.1.2 Mathematics in the world around us

1.1.3 EDUCATOR SECTION

1.1.4 Memorandum

1.1.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

MODULE 1

¹This content is available online at <<http://cnx.org/content/m22584/1.1/>>.

Critical and developmental outcomes:	Pages:
CO 1	E-4, 10, 11, 14, 18, 19, 20, 21, 24
CO 2	E-1, E-5, 15, 25
CO 3	3, 4, E-2, 16, 17
CO 4	5
CO 5	1, 7, 8, 9, 12,13, 22
CO 6	28
CO 7	5, 6, 27, 28, 29
CO 8	26, E-9

Table 1.1

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

Educator's page

- Each learner has page 2 which they can colour and put into a plastic sleeve until the completion of page 6.
- Discussion of the friends will follow
- Who are they? Names? How many?
- Who is first? second? third? etc.
- Who comes after Mo, etc?before Pat, etc.? between Sisulu and Ann?
- Are they all the same - Why not?
- Are they different? How do you know? Give reasons. Here are some clues to help you.
- Look at their hair - long/short. Clothes. Lengths - tall/short.
- There are some things that are the same.
- Clues:

Look at eyes/each one has 2 eyes.

- Count the eyes in two's.
- Ears? Count the ears in two's.
- Hands? Count in two's.
- Feet? Count in two's.
- Shoes? Count in two's.
- Legs? Count in two's.
- Arms? Count in two's.
- Noses? Count in __?
- Mouth? Count in __?
- Fingers on one hand / count in 5's.
- Fingers on 2 hands / count in 10's.
- Toes on one foot / count in 5's.
- Toes on two feet / count in 10's.

1.1.6

LO 1.2	
--------	--

Table 1.2

1.1.7 LEARNER SECTION

1.1.8 Content

1.1.8.1 ACTIVITY: Friends [LO 1.4, LO 1.1]

- Tell your friends who you are.

My name is _____
I am _____
years old.
It is my first day in Grade _____

- Draw a picture in each block.

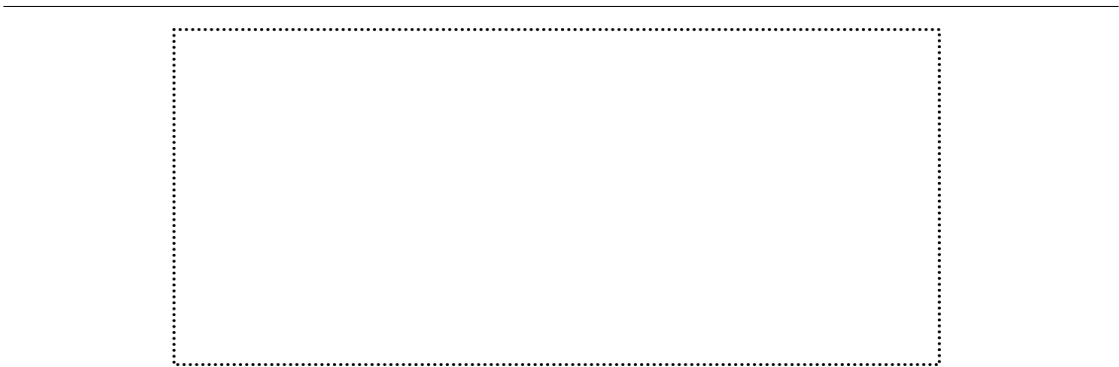


Figure 1.1

Yesterday

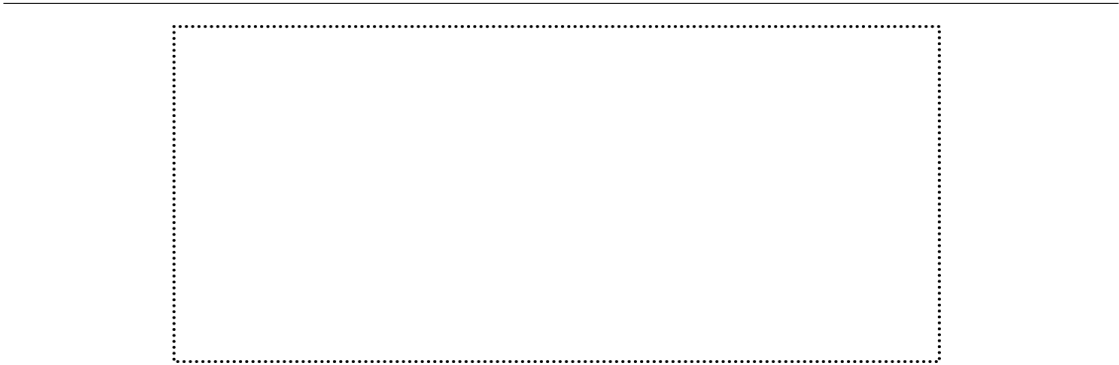


Figure 1.2

Today

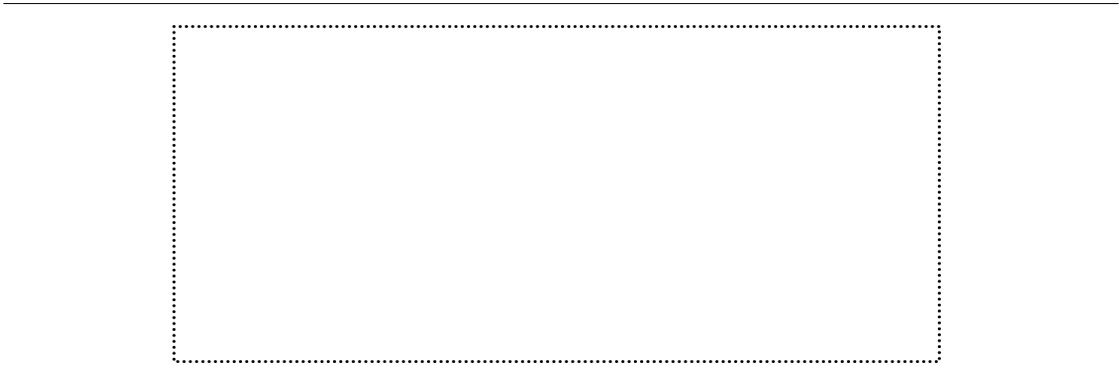


Figure 1.3

Tomorrow

LO 4.4	
--------	--

Table 1.3

My friends



Figure 1.4

These are my friends.



Figure 1.5

- I have _____ friends.

- There are _____ boys and _____ girls.

- There are _____ boys than girls.

more/less/the same number of

- They all have names.

First is Liz, second is _____,
 third is _____, fourth is _____,
 _____,

fifth is _____, sixth is _____,
 seventh is _____, eighth is _____,
 ninth is _____ and last is _____



Figure 1.6

Sally comes after _____
 Mike comes before _____
 Tom is between _____ and _____
 1st 2nd 3rd 4th _____

LO 1.1		LO 1.4	
--------	--	--------	--

Table 1.4

Numbers also have names.

- Write their names:

1 _____
 2 _____
 3 _____
 4 _____
 5 _____
 6 _____
 7 _____
 8 _____
 9 _____
 10 _____

- Seven comes after _____
- Three comes before _____
- Five comes between _____ and _____

- Fill in the missing numbers.

0	1		3				7			10
---	---	--	---	--	--	--	---	--	--	----

Table 1.5

10	9									
----	---	--	--	--	--	--	--	--	--	--

Table 1.6

LO 1.3		LO 1.10	
--------	--	---------	--

Table 1.7

All about my friends.



Figure 1.7

- We are all _____ (the same / different)
- _____ have long hair.
- _____ have short hair. (How many?)
- My graph

The length of my friends' hair											
Long hair											
Short hair											
friends	1	2	3	4	5	6	7	8	9	10	

Table 1.8

- Colour the blocks red to show the number of friends that have long hair.

- Colour the blocks blue to show the number of friends that have short hair.



Figure 1.8

Write:

- There are _____ with long hair. (more/less)
- There are _____ with short hair. (more/less)
- Count the children in the class with long hair. _____ have long hair.
- Count the children in the class with short hair. _____ have short hair.

LO 5.1		LO 5.2		LO 5.4		LO 5.5	
--------	--	--------	--	--------	--	--------	--

Table 1.9

- Count their eyes in 2's.

Friend/s					
	1	2	3	4	5
Eyes	.....	.....	.....	.....	.....

Figure 1.9

- Count their ears in 2's.






Friend/s					
	1	2	3	4	5
Ears	.....	.....	.....	.....	.....

Figure 1.10

- Count their fingers in 10's.



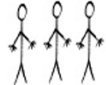


Friend/s					
	1	2	3	4	5
Fingers	.....	.....	.....	.....	.....

Figure 1.11

- Count their toes in 10's.



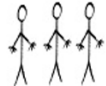


Friend/s					
	1	2	3	4	5
Toes	.....	.....	.....	.....	.....

Figure 1.12

- Choose a friend. Each one takes some counters.

Guess _____
Count _____

LO 1.2	
--------	--

Table 1.10

1.1.9 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.3 fives from any multiple of 5 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

- 1.4.1 whole numbers to at least 2-digit numbers;
- 1.4.2 common fractions including halves and quarters;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;
- 1.10.2 doubling and halving;
- 1.10.3 using concrete apparatus (e.g. counters);
- 1.10.4 number-lines;

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.4: We know this when the learner sequences events according to days, weeks, months and years;

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.1: We know this when the learner collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posed by the teacher (e.g. ‘how many learners are there in each classroom?’);

Assessment Standard 5.2: We know this when the learner sorts physical objects to one attribute chosen by the teacher;

Assessment Standard 5.4: We know this when the learner draws pictures and constructs pictographs that have a 1-1 correspondence between own data and representations;

Assessment Standard 5.5: We know this when the learner describes own or a peer’s collection of objects, explains how it was sorted, and answers questions about it.

1.2 The calendar²

1.2.1 MATHEMATICS

1.2.2 Mathematics in the world around us

1.2.3 EDUCATOR SECTION

1.2.4 Memorandum

1.2.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

MODULE 1

Critical and developmental outcomes:	Pages:
CO 1	E-4, 10, 11, 14, 18, 19, 20, 21, 24
CO 2	E-1, E-5, 15, 25
CO 3	3, 4, E-2, 16, 17
CO 4	5
CO 5	1, 7, 8, 9, 12,13, 22
CO 6	28
CO 7	5, 6, 27, 28, 29
CO 8	26, E-9

Table 1.11

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

²This content is available online at <<http://cnx.org/content/m22585/1.1/>>.

Educator's page

- Each learner has page 7.
 - "Why do we want a calendar?" [It tells us the days of the week, months of the year and the date. This is important so that we can know when our appointments are, when our birthdays are, which days are school days, which weekends, etc.]
 - What is the first day of the week? Sunday.
 - Let's say all the days of the week beginning from Sunday.
-
- Questions: - Which day comes after e.g. Monday? After Friday, etc?- Which day comes before e.g. Wednesday? Before Sunday, etc?- Which day comes between Tuesday and Thursday, etc?- At which month of the year are we looking now?- How many days in January?- Count to 31 forward and backward.- On which day is the 3rd of January? How do you know? On which day is the 10th of January?- How many days from the second of January to the tenth?- What day is it today? Today is Tomorrow will be Yesterday was - What is today's date?- When did school begin?- Count all the school days in January.- Which month comes after January?- Learn the song: January, February, March, April...- Read and do the instructions on page 7.

LO 4.2	LO 4.3	
--------	--------	--

Table 1.12

1.2.5.1 LEARNER SECTION

1.2.5.2 Content

1.2.5.3 ACTIVITY: The calendar [LO 1.1, LO 1.4, LO 4.2, LO 4.3, LO 4.4]

- My calendar for

My calendar for						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<ul style="list-style-type: none"> • January has 31 days. • Count from 1 to 31. • Write the missing numbers in the blocks. 				<ul style="list-style-type: none"> • January has Mondays. • is the first day of the week. • The 3rd of January is on a 		

Table 1.13

LO 1.1		LO 4.2		LO 4.3		LO 4.4	
--------	--	--------	--	--------	--	--------	--

Table 1.14

- My calendar can help me.

_____ is the first month of the year.

There are _____ days in a week.

Sunday, M_____, T_____,
W_____, _____, _____,

_____.

Today is _____

Yesterday was _____

Tomorrow will be _____

Tuesday comes after _____

Sunday comes before _____

- Complete these parts of a calendar.

S	M	T	W	Th	F	S
1	2	.....	.....	.....	.....	.....
.....				

Table 1.15

LO 4.2		LO 4.3	
--------	--	--------	--

Table 1.16

S	M	T	W	Th	F	S
			4	5	.....	.....
.....				

Table 1.17

S	M	T	W	Th	F	S
			4	5	.....	.....
.....				

Table 1.18

S	M	T	W	Th	F	S

.....	.....	9	10			

Table 1.19

S	M	T	W	Th	F	S
	5	6
.....			

Table 1.20

- Which number comes after ...

5 _____ ,
 8 _____ ,
 3 _____ ,
 7 . _____ ,
 1 _____

- Which number comes before ...

_____ 4 ,
 _____ 8 ,
 _____ 9 ,
 _____ 5 ,
 _____ 7

- Which number comes between ...

6 _____ 8 ,
 3 _____ 5 ,
 7 _____ 9 ,
 4 _____ 6

LO 1.4	LO 4.3	
--------	--------	--

Table 1.21

1.2.5.3.1 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

- 1.4.1 whole numbers to at least 2-digit numbers;
- 1.4.2 common fractions including halves and quarters;

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.2: We know this when the learner names in order the days of the week and the months of the year;

Assessment Standard 4.3: We know this when the learner calculates elapsed time in:

4.3.1 hours and minutes using clocks;

4.3.2 days, weeks and months using calendars;

Assessment Standard 4.4: We know this when the learner sequences events according to days, weeks, months and years;

1.3 Doubling and halving³

1.3.1 MATHEMATICS

1.3.2 Mathematics in the world around us

1.3.3 EDUCATOR SECTION

1.3.4 Memorandum

1.3.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
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MODULE 1

Critical and developmental outcomes:	Pages:
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CO 3	3, 4, E-2, 16, 17
CO 4	5
CO 5	1, 7, 8, 9, 12,13, 22
CO 6	28
CO 7	5, 6, 27, 28, 29
CO 8	26, E-9

Table 1.22

³This content is available online at <<http://cnx.org/content/m22587/1.1/>>.

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- A healthy environment: This is our responsibility – what can we do about keeping our environment healthy?

Educator's page

Doubling

- Pick up 1 counter / block / bean in one hand.
- Pick up the same number in the other hand.
- How many?
- How many altogether?
- We can say $1 + 1 = 2$
- What have we done?
- We have taken the same number in the other hand.
- We say WE HAVE DOUBLED ONE.
- One doubled is equal to 2.
- Follow the same steps with 2, 3, 4 and 5 so that learners understand the concept of doubling.
- Ask each one individually in order to assess whether he understands the term "double" and whether he can work out the doubles.
- How else can we double numbers besides using counters? Draw?
- Look around the room: Can you see any place where numbers are doubled? E.g. 4 windows on the left side and 4 windows on the right side. Lights? Body parts? - eyes, ears, hands, feet, fingers, toes.

Halving

Halving means sharing out equally between 2 people. Work on the mat, e.g.

- Take 2 counters Share them out between 2 children How many will each get? What happens if we put the 2 counters together again? We will have 2. What is that called? Doubling.
- Take 4 counters.
- Follow steps as for 2
- Take 6
- Take 8
- Take 10

1.3.5.1 LEARNER SECTION

1.3.5.2 Content

1.3.5.3 ACTIVITY: Doubling and halving [LO 1.10, LO 1.2, LO 1]



Doubling and Halving

Liz and Mike go for a walk.


They see all these doubles. They can halve them too.

Can you?


Double these ...




$1 + 1 = \dots\dots\dots$



$2 + 2 = \dots\dots\dots$





$3 + 3 = \dots\dots\dots$




$4 + 4 = \dots\dots\dots$

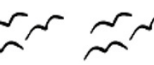
Halve these ...




half of 2 is = $\dots\dots\dots$



half of 4 is = $\dots\dots\dots$



half of 6 is = $\dots\dots\dots$



half of 8 is = $\dots\dots\dots$

Figure 1.14

Which other numbers can you double?		Now halve them.	
10		Half of	20
20			40
100			200
200			400

Table 1.24

Which other numbers can you halve?		Double these.
Try	40	20
	60	30
	80	40

Table 1.25

LO 1.10	
---------	--

Table 1.26

- I keep my things tidy.

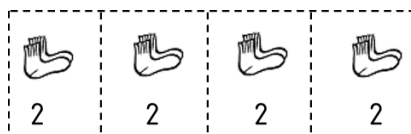


Figure 1.15

-
- I have _____ pairs of socks.

- I have _____ socks altogether.

$$2 + 2 + 2 + 2 = \underline{\hspace{2cm}}$$

2 taken 4 times is equal to _____

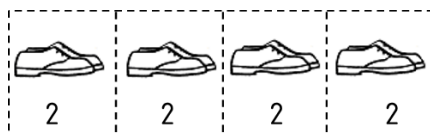


Figure 1.16

-
- I have _____ pairs of shoes.

- I have _____ shoes altogether.

$$2 + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2 taken _____ times is equal to _____

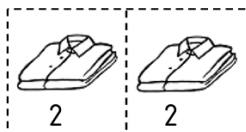


Figure 1.17

-
- My shirts are stacked in 2's.

- I have _____ shirts altogether.
- $2 + 2 =$ _____
2 taken _____ times is equal to _____

LO 1.2	
--------	--

Table 1.27

Colour:2 red2 blueCount in 2's		Colour:3 red3 blueCount in 3's
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	

Table 1.28

- I stack my toys

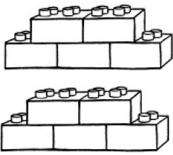
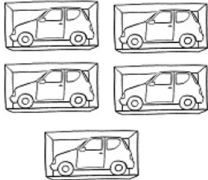
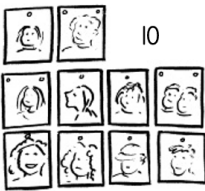
<div>5</div> 	<p>I stack my Lego in 5's.</p> <p>I have 2 stacks of 5's.</p> <p>I have Legos altogether.</p> <p>$5 + 5 = 10$ 5 taken times is equal to</p>
<div>5</div> 	<p>I stack my cars in 5's.</p> <p>I have stacks of 5's.</p> <p>I have cars altogether.</p> <p>$5 + 0 = \dots\dots\dots$</p> <p>5 taken time is equal to</p>
 <div>10</div>	<p>I pin up my photos in 10's.</p> <p>I have board of 10's.</p> <p>I have photos altogether.</p> <p>$10 + 0 = \dots\dots\dots$</p> <p>10 taken 1 time are equal to</p>

Figure 1.18

LO 1	
------	--

Table 1.29

- Complete

3 boys wear _____ socks. $2 + 2 + 2 = \dots\dots\dots$

5 girls have _____ eyes. $2 + 2 + 2 + 2 + 2 = \dots\dots\dots$

1 mom has _____ hands. $2 + 0 = \dots\dots\dots$

Pat and Ann have _____ hands. $2 + 2 = \dots\dots\dots$

Mike and Sisulu have _____ shoes. $2 + 2 = \dots\dots\dots$

1.3.6 Assessment

Learning Outcome 1:The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.3 fives from any multiple of 5 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;

- 1.10.2 doubling and halving;
- 1.10.3 using concrete apparatus (e.g. counters);
- 1.10.4 number-lines;

1.4 One more and problem solving⁴

1.4.1 MATHEMATICS

1.4.2 Mathematics in the world around us

1.4.3 EDUCATOR SECTION

1.4.4 Memorandum

1.4.5 Critical and developmental outcomes:

The learners must be able to:

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4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

MODULE 1

Critical and developmental outcomes:	Pages:
CO 1	E-4, 10, 11, 14, 18, 19, 20, 21, 24
CO 2	E-1, E-5, 15, 25
CO 3	3, 4, E-2, 16, 17
CO 4	5
CO 5	1, 7, 8, 9, 12,13, 22
CO 6	28
CO 7	5, 6, 27, 28, 29
CO 8	26, E-9

Table 1.30

- **Integration of Themes:** Friends

⁴This content is available online at <<http://cnx.org/content/m22588/1.1/>>.

- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- A healthy environment: This is our responsibility – what can we do about keeping our environment healthy?

1.4.5.1 Educator's page

One more

Teacher will assess whether learners understand the concept of 1 more by doing the following on the mat:

[U+263B] Put out 4 counters. Make it 1 more (different colour). How many?

[U+263B] Do the same with 7, 3, 9, etc.

[U+263B] How many children are there in the room? We get 1 more - how many are there now?

Let 4 or 5 learners stand in front. How many children are there?

One more?

[U+263B] Now observe and assess as similar steps are done making ONE LESS.

Problem Solving

[U+263B] Learners need to be confronted with problem solving many times so that they are able to work out their own strategies.

[U+263B] Take for example the problem at the bottom of page 15.

[U+263B] Set a similar problem and observe how the learners attempt to solve it.

[U+263B] Discuss their different strategies.

[U+263B] They may use counters or draw pictures or do it mentally, etc.

[U+263B] They must be able to explain their strategies in words.

[U+263B] Discuss different strategies.

1.4.5.2 LEARNER SECTION

1.4.5.3 Content

1.4.5.4 ACTIVITY: One more and problem solving [LO 1.9, LO 1.11]

- Complete:



Figure 1.19

9 boys and 1 more are _____ boys.

4 girls and 1 more are _____ girls.
2 sticks and 1 more are _____ sticks.
5 socks and 1 more are _____ socks.

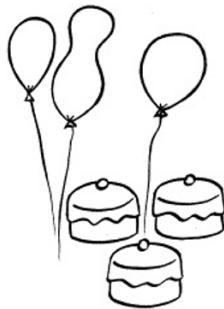


Figure 1.20

7 cakes and 1 less are _____ cakes.
9 balloons and 1 less are _____ balloons.
6 pens and 1 less are _____ pens.
3 girls and 1 less are _____ girls.
There are 5 boys at my house. Another boy comes to play.
Now we are _____ boys.
Five girls go for a walk. One girl goes home. Now there are _____ girls.

LO 1.9		LO 1.11	
--------	--	---------	--

Table 1.31

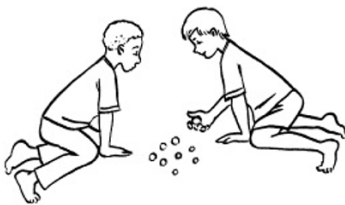


Figure 1.21

- We play marbles. Each one wins two more.

Draw two more marbles in each bag.

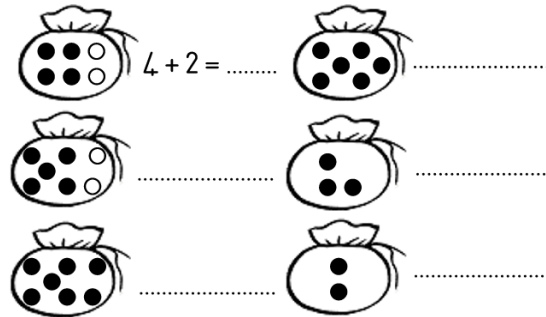


Figure 1.22

- Complete:

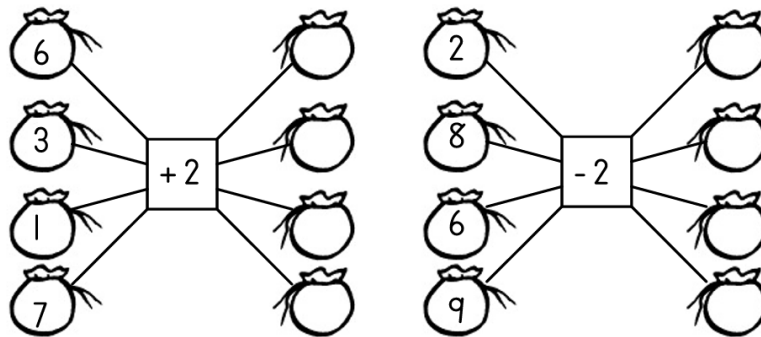


Figure 1.23

- Jo lost 2 marbles. He has 6 marbles left. He had marbles at the start of the game.
- Say how you did the sum or draw the marbles.

LO 1.9		LO 1.11	
--------	--	---------	--

Table 1.32

1.4.6 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems.

1.5 Number facts⁵

1.5.1 MATHEMATICS

1.5.2 Mathematics in the world around us

1.5.3 EDUCATOR SECTION

1.5.4 Memorandum

1.5.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
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⁵This content is available online at <<http://cnx.org/content/m22597/1.1/>>.

Table 1.33

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

Educator's page

Number Facts

[U+263B] Use flashcards with +1, -1, +2, -2 sums. Flash and assess whether learners can say the answers reasonably quickly or whether they still need counters, etc.

[U+263B] Do an example of the hidden picture (page 1)

1. . .

4. . .

7. . .

on the board so that everyone understands how to plot the answers and join the dots which they mark in red.

1.5.6 LEARNER SECTION

1.5.7 Content

1.5.7.1 ACTIVITY: Number facts [LO 1.4, LO 1.1]

Smarties on a plate.

- I add three more to every plate.

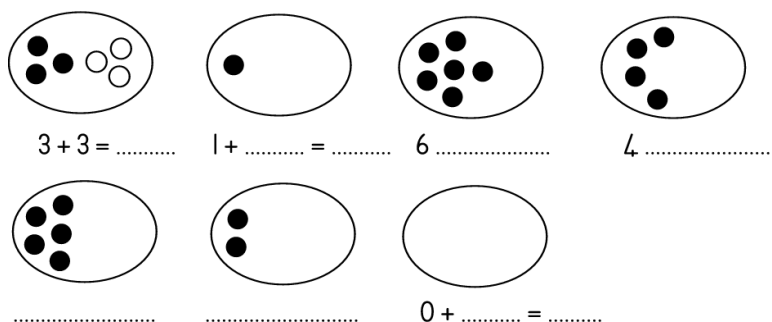


Figure 1.24

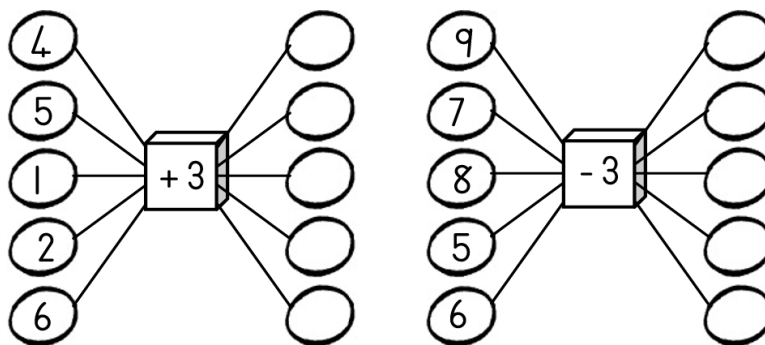


Figure 1.25

- Sisulu has 6 smarties. He eats three. Now he has smarties left.
- Des ate three smarties. He has 4 smarties left. He had smarties on his plate to begin with.
- Say or show how you did the sum.

LO 1.9		LO 1.11	
--------	--	---------	--

Table 1.34

More fun!

- Use the answers to draw a red dot. Join the dots to make a picture.

1.	2.	3.	1.	$4 - 3 = \dots\dots\dots$	4.	$5 + 3 = \dots\dots\dots$	7.	$6 - 3 = \dots\dots\dots$
4.	5.	6.	2.	$7 - 3 = \dots\dots\dots$	5.	$6 + 3 = \dots\dots\dots$	8.	$5 - 3 = \dots\dots\dots$
7.	8.	9.	3.	$5 + 2 = \dots\dots\dots$	6.	$3 + 3 = \dots\dots\dots$	9.	$4 - 3 = \dots\dots\dots$

Figure 1.26

What did you draw?

- Follow the road to Pat's house.

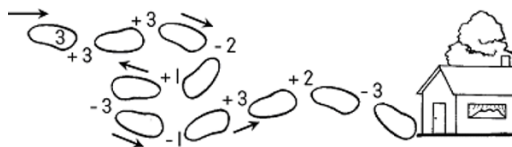


Figure 1.27

- Say the answers quickly to a friend. Now write the answers.

$$4 + 3 = . \quad 5 - 3 = . \quad 9 - 3 = .$$

$$3 + 3 = . \quad 6 + 1 = . \quad 7 + 2 = .$$

$$7 - 2 = . \quad 1 + 3 = . \quad 8 - 3 = .$$

- Choose and colour one.



Figure 1.28

LO 1.12		LO 1.9		LO 3.1	
---------	--	--------	--	--------	--

Table 1.35

1.5.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems;

Assessment Standard 1.12: We know this when the learner checks the solution given to problems by peers.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures, including:

3.1.1 boxes (prisms), balls (spheres) and cylinders;

3.1.2 triangles, squares and rectangles;

3.1.3 circles.

1.6 Sums in shapes at the fun fare⁶

1.6.1 MATHEMATICS

1.6.2 Mathematics in the world around us

1.6.3 EDUCATOR SECTION

1.6.4 Memorandum

1.6.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
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Table 1.36

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

⁶This content is available online at <<http://cnx.org/content/m22598/1.1/>>.

1.6.5.1 LEANER SECTION

1.6.5.2 Content

1.6.5.3 ACTIVITY: Sums in shapes at the fun fare [LO 1.9]

Sums in Shapes at the Fun Fare



Figure 1.29

- Fill in the missing numbers.

- Write the sums.

$$\begin{array}{rcl}
 3 & \underline{\hspace{2cm}} & = 5 \\
 2 & \underline{\hspace{2cm}} & = 5 \\
 1 & \underline{\hspace{2cm}} & = 5 \\
 4 & \underline{\hspace{2cm}} & = 5
 \end{array}$$

- Think! Write more sums that make 5.

$$\begin{array}{rcl}
 5 & = & \underline{\hspace{2cm}} \\
 5 & = & \underline{\hspace{2cm}}
 \end{array}
 \qquad
 \begin{array}{rcl}
 5 & = & \underline{\hspace{2cm}} \\
 5 & = & \underline{\hspace{2cm}}
 \end{array}$$

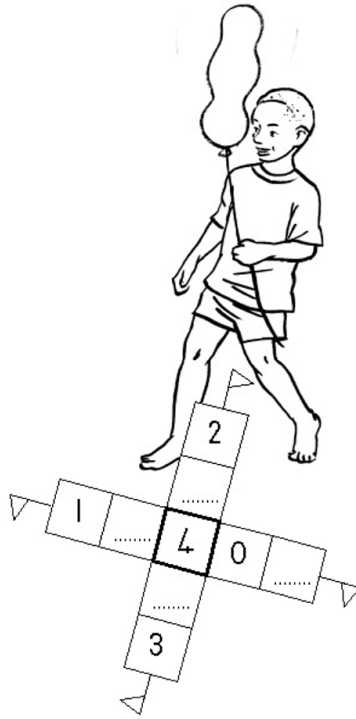


Figure 1.30

- Write the sums.

$$\begin{array}{rcl}
 1 & \text{-----} & = 4 \\
 3 & \text{-----} & = 4 \\
 0 & \text{-----} & = 4 \\
 2 & \text{-----} & = 4
 \end{array}$$

- Think! Write more sums that make 5.

$$\begin{array}{rcl}
 5 & = & \text{-----} \\
 5 & = & \text{-----}
 \end{array}$$

LO 1.9	
--------	--

Table 1.37

- Complete:

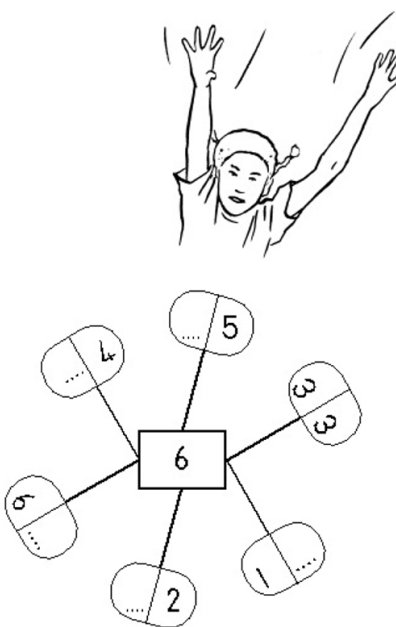


Figure 1.31

-
- Write the number sentences

_____ = 6
 _____ = 6

- My own number sentences

6 = _____ + _____ + _____
 6 = _____
 6 = _____

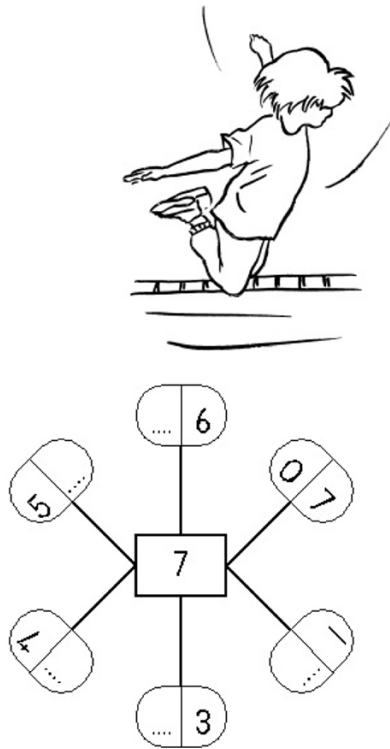


Figure 1.32

- Write the number sentences

----- = 7
 ----- = 7

- My own number sentences

7 = _____ + _____ + _____
 7 = _____
 7 = _____

LO 1.9	
--------	--

Table 1.38

- Complete

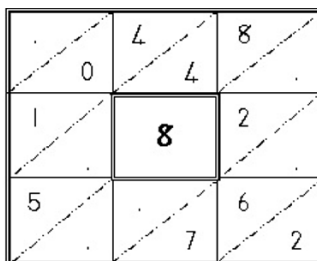


Figure 1.33

- Write the number sentences

$$\begin{array}{l} \text{-----} = 8 \\ \text{-----} = 8 \\ \text{-----} \\ \text{-----} \\ \text{-----} \end{array}$$

- My own number sentences

$$\begin{array}{l} 8 = \text{-----} + \text{-----} + \text{-----} \\ 8 = \text{-----} \\ 8 = \text{-----} \end{array}$$

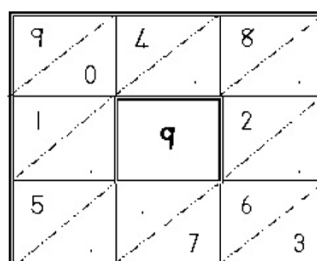


Figure 1.34

- Write the number sentences

$$\begin{array}{l} \text{-----} = 9 \\ \text{-----} = 9 \\ \text{-----} \\ \text{-----} \\ \text{-----} \end{array}$$

- My own number sentences

$$9 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$9 = \underline{\hspace{2cm}}$$

$$9 = \underline{\hspace{2cm}}$$

LO 1.9	
--------	--

Table 1.39

1.6.6 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

- 1.9.1 addition and subtraction for numbers to at least 20;
- 1.9.2 multiplication of whole numbers with solutions to at least 20;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems.

1.7 Tall and short⁷

1.7.1 MATHEMATICS

1.7.2 Mathematics in the world around us

1.7.3 EDUCATOR SECTION

1.7.4 Memorandum

1.7.5 Critical and developmental outcomes:

The learners must be able to:

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MODULE 1

⁷This content is available online at <<http://cnx.org/content/m22603/1.1/>>.

Critical and developmental outcomes:	Pages:
CO 1	E-4, 10, 11, 14, 18, 19, 20, 21, 24
CO 2	E-1, E-5, 15, 25
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CO 6	28
CO 7	5, 6, 27, 28, 29
CO 8	26, E-9

Table 1.40

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

1.7.5.1 LEANER SECTION

1.7.5.2 Content

1.7.5.3 ACTIVITY: Tall and short [LO 1.9]

Look at the pictures

- Mark the tall buildings with a red ✓.
- Mark the tall people with a red ✓.
- Mark the short people with a blue X.
- Mark the tall trees with a red ✓.
- Mark the short trees with a blue X.
- Mark the tall grasses with a red ✓.
- Mark the short grasses with a blue X.
- Count the tall objects. _____ are tall.
- Count the short objects. _____ are short.
- The tall building is _____ than my pencil.
(taller / shorter)
- I tell my friend how I know this.

LO 4.6	
--------	--

Table 1.41



Figure 1.35

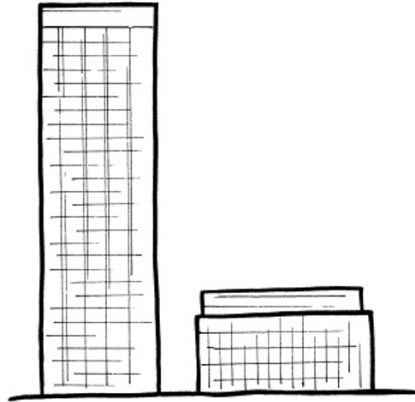


Figure 1.36

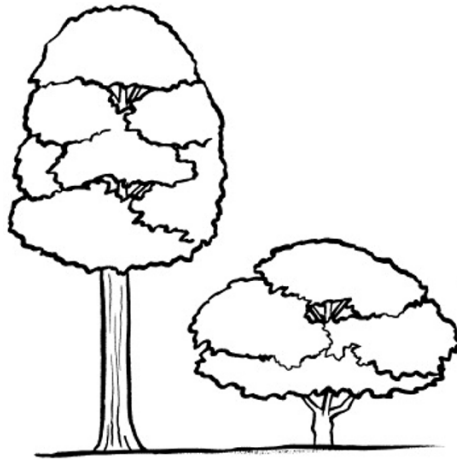


Figure 1.37

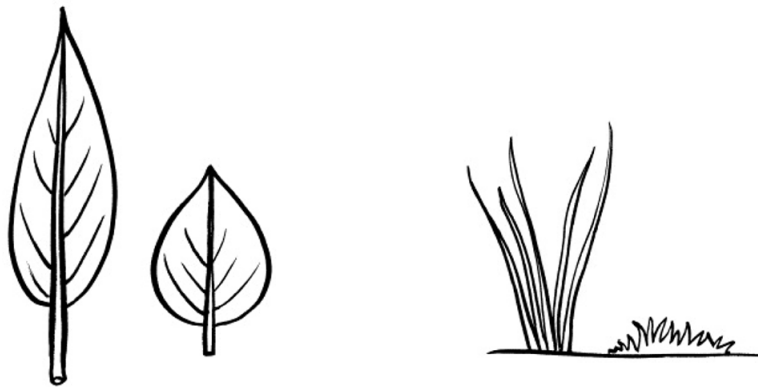


Figure 1.38

Do these on the board

- What can you see that is the same about:

$$6 + 1 = 7$$

$$\text{and } 1 + 6 = 7 ?$$

- Are they true number sentences?
- What is different about them?
- Let's write them like this

$$\begin{array}{c} \triangle 6 \\ \square 1 \end{array} + \begin{array}{c} \square 1 \\ \triangle 6 \end{array} = \begin{array}{c} \bigcirc 7 \\ \bigcirc 7 \end{array}$$

Figure 1.39

-
- In which shape is 6? 1? 7?
 - What has happened to the 6's and the 1's places?
 - Do you know which numbers should be in these boxes?

$$\triangle + \square = 5$$

Figure 1.40

-
- Now keep the same numbers. Just change their places.

$$\square + \triangle = 5$$

Figure 1.41

-
- Make sure they are true number sentences.
 - Try:

$$\begin{array}{ccc} \triangle & + & \square = 3 \\ \square & + & \triangle = 3 \end{array}$$

Figure 1.42

LO 1.9	
--------	--

Table 1.42

1.7.6 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20.

1.8 Number Puzzles⁸

1.8.1 MATHEMATICS

1.8.2 Mathematics in the world around us

1.8.3 EDUCATOR SECTION

1.8.4 Memorandum

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Table 1.43

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

⁸This content is available online at <<http://cnx.org/content/m22606/1.1/>>.

1.8.5.1 Educators page

Look at the shapes around you.

- What does the window look like? (Learner describes the shape of the window.)
- Who can draw the shape of the window?

How many sides?

How many corners?

- This shape is called a rectangle.
- Teacher does the same with circles, triangles and squares.
- Let them discuss each shape; what its characteristic is and what each one is called.
- Ask learners to bring things, e.g. boxes, containers, objects, bottles, etc.,to school.
- Let learners sort them according to their shapes and identify these shapes.
- Discuss their shapes.

LO 3.1		LO 3.2	
--------	--	--------	--

Table 1.44

1.8.6 LEARNER SECTION

1.8.7 Content

1.8.7.1 ACTIVITY: Number Puzzles [LO 1.9, LO 1.11, LO 3.1, LO 3.2]

- Complete:

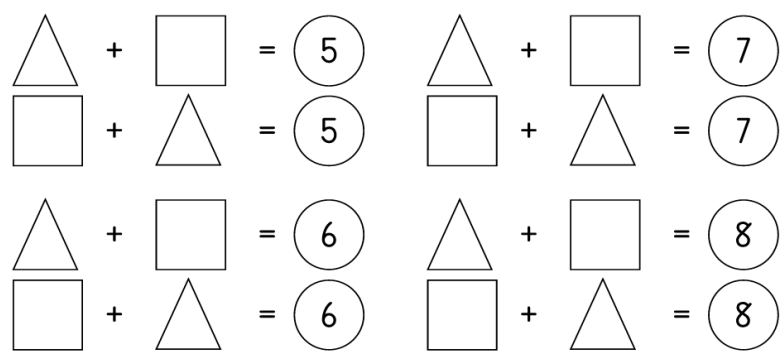


Figure 1.43

- Use your own numbers in and and

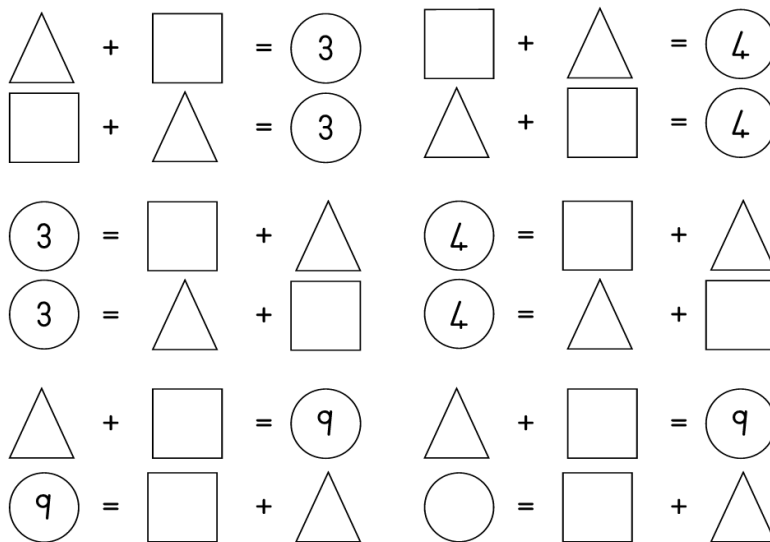


Figure 1.44

LO 1.9	
--------	--

Table 1.45

On the board.

- Look again at A:

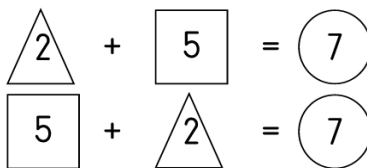


Figure 1.45

-
- Are they true number sentences?
 - Now look at B:

$$\begin{array}{rcl} \textcircled{7} & - & \boxed{2} = \triangleup 5 \\ \textcircled{7} & - & \triangleup 5 = \boxed{2} \end{array}$$

Figure 1.46

-
- How are the sums in A and B different?
 - Which two numbers can be subtracted from the 7 to make the number sentences true? Yes, the ones in a [U+25B2] and a [U+25A0] .
 - Try these.
-

$$\begin{array}{rcl} \textcircled{6} & - & \boxed{4} = \triangleup \\ \textcircled{6} & - & \triangleup 2 = \boxed{} \end{array}$$

Figure 1.47

-
- Now
-

$$\begin{array}{rcl} \textcircled{8} & - & \triangleup 1 = \boxed{} \\ \textcircled{8} & - & \boxed{} = \triangleup \end{array}$$

Figure 1.48

Table 1.46

More number puzzles

- Complete:

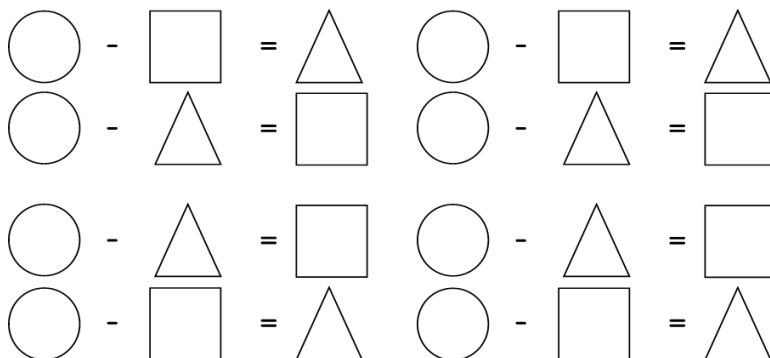


Figure 1.49

-
- Use your own numbers in [U+25CF] and [U+25B2] and [U+25A0] .

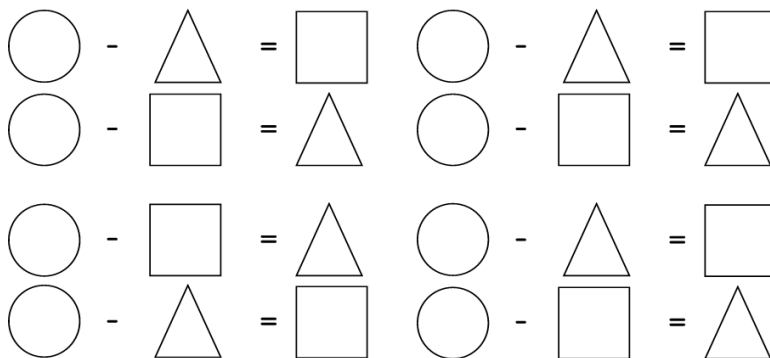


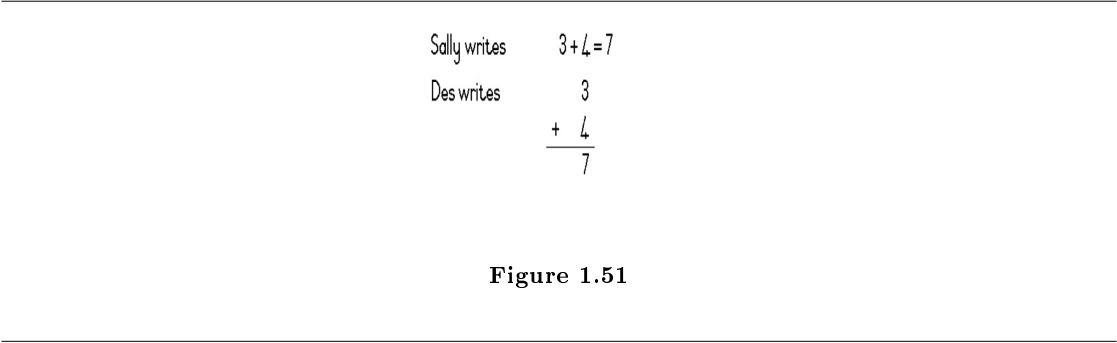
Figure 1.50

-
- Check and see whether you have written a true number sentence.
 - Explain how you checked your sum.

LO 1.9		LO 1.11	
--------	--	---------	--

Table 1.47

- Sally and Des do their sums like this. Can you?



- Who do you think is right? Why?
- Help Des to do these sums.

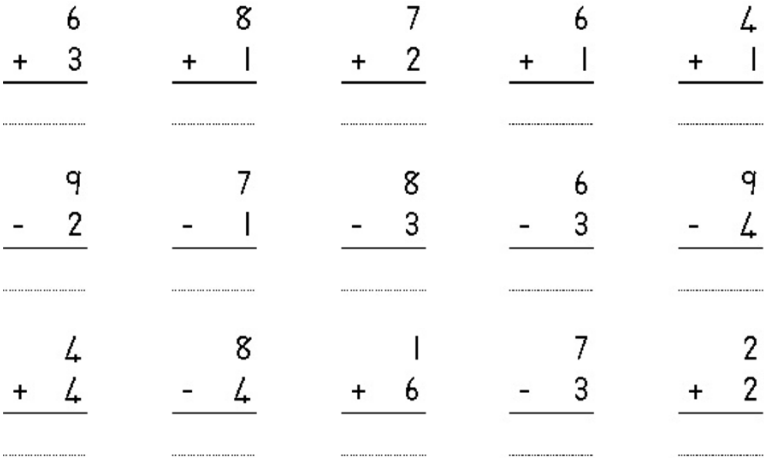


Figure 1.52

- I found them: ...



Figure 1.53

-
- Choose one and colour it.

LO 1.9	
--------	--

Table 1.48

1.8.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures, including:

3.1.1 boxes (prisms), balls (spheres) and cylinders;

3.1.2 triangles, squares and rectangles;

- circles.

Assessment Standard 3.2: We know this when the learner describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment according to:

3.2.1 size;

3.2.2 objects that roll or slide.

1.9 Assessment⁹

1.9.1 MATHEMATICS

1.9.2 Mathematics in the world around us

1.9.3 EDUCATOR SECTION

1.9.4 Memorandum

1.9.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

MODULE 1

Critical and developmental outcomes:	Pages:
CO 1	E-4, 10, 11, 14, 18, 19, 20, 21, 24
CO 2	E-1, E-5, 15, 25
CO 3	3, 4, E-2, 16, 17
CO 4	5
CO 5	1, 7, 8, 9, 12,13, 22
CO 6	28
CO 7	5, 6, 27, 28, 29
CO 8	26, E-9

Table 1.49

- **Integration of Themes:** Friends
- **Inclusively:** Although we are all unique, we share many similarities; appearance, sport, education etc.
- **Social Justice:** Friends and their expected behaviour towards one another.
- **A healthy environment:** This is our responsibility – what can we do about keeping our environment healthy?

⁹This content is available online at <<http://cnx.org/content/m22608/1.1/>>.

1.9.5.1 LEANER SECTION**1.9.5.2 Content****1.9.5.3 ACTIVITY: Assessment [LO 1.3, LO 2.2, LO 1.9]**

- I can count. Can you?
- Complete the pattern.

4, 5,
 8, 7, 0.
 2, 4,
 10, 8, 0.
 5, 10, 30.
 10, 20, 70.

Figure 1.54

Before? 9 3 6 4	After? 7 8 2 5	Between? 6 8 3 5
One more than 4 6 7 8	Two more than 4 6 7 8	Three more than 4 6 7 2

Figure 1.55

-
- Write their names

1. _____ 7 _____ 1 _____ 2 _____

3 ----- 8 ----- 5 ----- 4 -----

1.3		LO 2.2	
-----	--	--------	--

Table 1.50

- Do I know all these number facts now?

Take this page home and say the answers to your Mummy and / or Daddy. Keep it in your flip file.

2 + 1 = .	4 + 3 = .	1 - 1 = .	6 - 4 = .	9 - 1 = .
1 + 2 = .	3 + 4 = .	2 - 1 = .	6 - 5 = .	9 - 2 = .
4 + 1 = .	7 + 1 = .	2 - 2 = .	6 - 6 = .	9 - 3 = .
1 + 4 = .	1 + 7 = .	3 - 1 = .	7 - 1 = .	9 - 4 = .
3 + 2 = .	6 + 2 = .	3 - 2 = .	7 - 2 = .	9 - 5 = .
2 + 3 = .	2 + 6 = .	3 - 3 = .	7 - 3 = .	9 - 6 = .
5 + 1 = .	5 + 3 = .	4 - 1 = .	7 - 4 = .	9 - 7 = .
1 + 5 = .	3 + 5 = .	4 - 2 = .	7 - 5 = .	9 - 8 = .
4 + 2 = .	4 + 4 = .	4 - 3 = .	7 - 6 = .	9 - 9 = .
2 + 4 = .	8 + 1 = .	4 - 4 = .	7 - 7 = .	
3 + 3 = .	1 + 8 = .	5 - 1 = .	8 - 1 = .	
6 + 1 = .	7 + 2 = .	5 - 2 = .	8 - 2 = .	
1 + 6 = .	2 + 7 = .	5 - 3 = .	8 - 3 = .	
5 + 2 = .	6 + 3 = .	5 - 4 = .	8 - 4 = .	
2 + 5 = .	3 + 6 = .	5 - 5 = .	8 - 5 = .	
	5 + 4 = .	6 - 1 = .	8 - 6 = .	
	4 + 5 = .	6 - 2 = .	8 - 7 = .	
		6 - 3 = .	8 - 8 = .	

Figure 1.56

LO 1.9	
--------	--

Table 1.51

1.9.6 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:
1.9.1 addition and subtraction for numbers to at least 20;

- multiplication of whole numbers with solutions to at least 20;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

1.10 Friends¹⁰

1.10.1 MATHEMATICS

1.10.2 Mathematics in the world around us

1.10.3 EDUCATOR SECTION

1.10.4 Memorandum

1.10.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Friends
- **Social Justice:** Friends should spend time together, e.g. playing games. Discuss in small groups what your attitude towards your friends should be when you play together.
- **A healthy environment:** Why is sport important? Discuss the safety precautions needed when participating in sport at school.

¹⁰This content is available online at <<http://cnx.org/content/m32448/1.1/>>.

- **Inclusively:** Who should be allowed to participate in sport at school? Only team players? Or should the school accommodate everyone? Make your own graph of which learners participate in sport.
- Number concept is extended to 50.
- Counting in 2's, 3's, 4's, 5's and 10's.
- Calendar activities enable learners to order the months and revise ordinals.
- Graph – a weather graph can be completed.
- Bonds of 10 are introduced with many opportunities to reinforce these.
- Measurement activities involving comparisons of height, length, width using related vocabulary.
- Capacity – litre;
- Identifying coins and shapes are included.

1.10.6 LEARNER SECTION

1.10.7 Content

1.10.7.1 ACTIVITY: Friends [LO 4.2, LO 4.6, LO 5.1, LO 5.2, LO 5.5]

- Here are my friends again. Cut them out and arrange them from the shortest to the tallest. Paste them on the next page.



Figure 1.57

LO 4.6	
--------	--

Table 1.52

- How did you do?

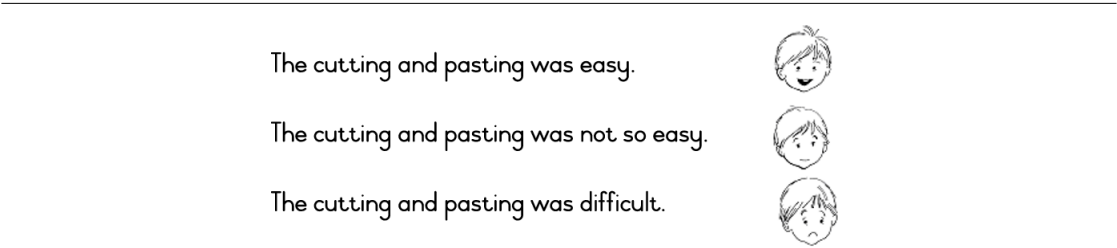


Figure 1.58

- Choose one and colour.
- Complete:

_____ is the shortest.

_____ is the tallest.

_____ is taller than _____

_____ is shorter than _____

- I use my pencil to measure the lengths of my friends’ pictures, which I have pasted.
- Complete the lists below.

Names of friends shorter than my pencil.	Names of friends taller than my pencil.

Table 1.53

LO 4.6	LO 5.1	LO 5.2
--------	--------	--------

Table 1.54

- Let’s put the months of the year in order. My birthday is in January.

Image not finished

Figure 1.59

- Let the number line help you.

1	2	3	4	5	6	7	8	9	10	11	12
J	F	M	A	M	J	J	A	S	O	N	D

Table 1.55

1st January

2nd _____

3rd _____

4rd _____

5th _____

6th _____

7th _____

8th _____

9th _____

10th _____

11th _____

12th _____

Today is the _____ of _____

LO 4.2	
--------	--

Table 1.56**1.10.7.1.1 A page from my calendar****1.10.7.1.1.1 MONTH**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Table 1.57

- Write the dates for this month above. Begin from 1.
- Complete:

The 1st of _____ is on a _____
 _____ has _____
 days.

There are _____ days from 5th to the 11th.

The 20th (twentieth) falls on a _____

There are _____ Sundays in _____
 (month)

LO 4.2		LO 4.3	
--------	--	--------	--

Table 1.58

sunny /yellow	cloudy/blue	rainy/red	windy/green
---------------	-------------	-----------	-------------

Table 1.59

- Collect the information for this month.

(month)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Table 1.60

- Use the above information for your graph.

The weather in (month)															
SunnyCloudyRainyWindy		1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1.61

- The _____ days were the most.
- The _____ days were the least.

LO 5.1		LO 5.4		LO 5.5	
--------	--	--------	--	--------	--

Table 1.62

1.10.8 Assessment

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.2: The learner will be able to name in order the days of the week and the months of the year;

Assessment Standard 4.6: The learner will be able to estimate, measure, compare and order three-dimensional objects using non-standard measures;

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.1: We know this when the learner collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posed by the teacher (e.g. 'how many learners are there in each classroom?');

Assessment Standard 5.2: We know this when the learner sorts physical objects to one attribute chosen by the teacher;

Assessment Standard 5.5: We know this when the learner describes own or a peer's collection of objects, explains how it was sorted, and answers questions about it.

1.11 Grouping¹¹

1.11.1 MATHEMATICS

1.11.2 Mathematics in the world around us

1.11.3 EDUCATOR SECTION

1.11.4 Memorandum

1.11.5 Critical and developmental outcomes:

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- Capacity – litre;
- Identifying coins and shapes are included.

1.11.6 LEARNER SECTION

1.11.7 Content

1.11.7.1 ACTIVITY: Grouping [LO 1.1, LO 1.2, LO 1.3, LO 1.4, LO 1.8, LO 1.9, LO 2.2]

1.11.7.1.1 Ten to go!



Figure 1.60

- Look at ten. Write your own sums to make 10.

_____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10
 _____ = 10

- Circle and join the numbers that add up to 10.
- Complete the triangles.

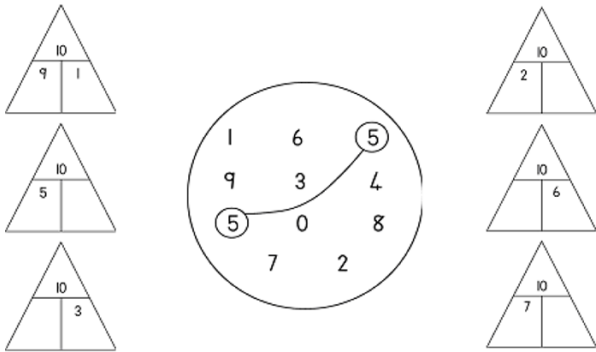























Figure 1.61

LO 1.9	
--------	--

Table 1.63

- Help Dad count 10 apples in a box. Group them.

		1 group of ten	1	0	ten
		__ group of ten and 1 more			eleven
		__ group of ten and __ more			twelve
		__ group of ten and __ more			thirteen
		__ group of ten and __ more			fourteen
		__ group of ten and __ more			fifteen
		__ group of ten and __ more			sixteen
		__ group of ten and __ more			seventeen
		__ group of ten and __ more			eighteen
		__ group of ten and __ more			nineteen
		___ groups of ten			twenty

I will write the labels for the boxes.

18 eighteen	11 _____	17 _____
12 _____	14 _____	15 _____
19 _____	13 _____	16 _____

Figure 1.62

LO 1.1	LO 1.3
--------	--------

Table 1.64

1.11.7.1.2 We play with sticks

- Guess how many sticks are in the box. _____ sticks.
- Count them. _____ sticks.
- Group the ten to make counting easier.
- Count the tens.






	1 group of ten	1	0	ten
	-- groups of ten			--- twenty
	-- groups of ten			--- thirty
	-- groups of ten			--- forty
	-- groups of ten			--- fifty

Figure 1.63

- Count the tens.

10
----	---	---	---	---





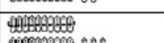
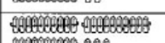
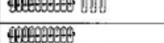

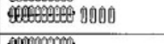
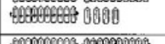

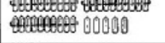

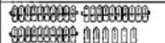
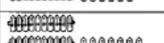
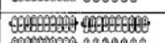
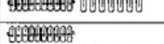
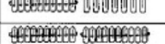
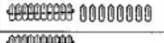
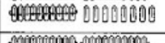
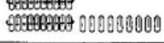
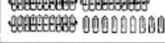
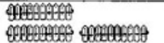
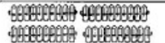
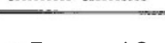

Table 1.65

10 + 10 = _____
50 - 10 = _____
20 + 10 = _____
40 - 10 = _____
30 + 10 = _____
30 - 10 = _____

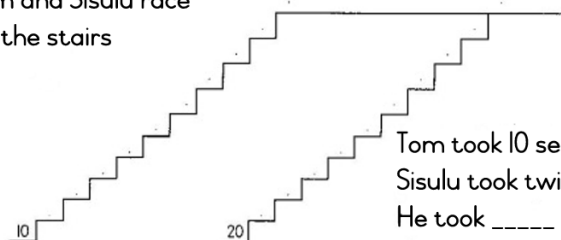
LO 1.2		LO 1.3		LO 1.8	
--------	--	--------	--	--------	--

Table 1.66

- Complete the patterns.

	$20 + 1 = 21$		$30 + 1 = 31$
	$20 + __ = 22$		$30 + 2 = 32$
			
			
			
			
			
			
			
			
			
			
	30		40

☺ Tom and Sisulu race
up the stairs



Tom took 10 seconds.
Sisulu took twice as long.
He took _____ seconds.

☺ Arrange these numbers from least to most.

14.	10.	16.	9.	18.	20.
---	---	---	---	---	---
29.	24.	20.	27.	19.	25.
---	---	---	---	---	---

Figure 1.64

LO 1.4

LO 2.2

Table 1.67

1.11.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.3 fives from any multiple of 5 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

- 1.4.1 whole numbers to at least 2-digit numbers;
- 1.4.2 common fractions including halves and quarters;

Assesseringstandaard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

- 1.9.1 addition and subtraction for numbers to at least 20;
- 1.9.2 multiplication of whole numbers with solutions to at least 20.

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

1.12 Mass, doubling, halving¹²

1.12.1 MATHEMATICS

1.12.2 Mathematics in the world around us

1.12.3 EDUCATOR SECTION

1.12.4 Memorandum

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7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

• Integration of Themes: Friends

¹²This content is available online at <<http://cnx.org/content/m32450/1.1/>>.

- **Social Justice:** Friends should spend time together, e.g. playing games. Discuss in small groups what your attitude towards your friends should be when you play together.
 - **A healthy environment:** Why is sport important? Discuss the safety precautions needed when participating in sport at school.
 - **Inclusively:** Who should be allowed to participate in sport at school? Only team players? Or should the school accommodate everyone? Make your own graph of which learners participate in sport.
-
- Number concept is extended to 50.
 - Counting in 2's, 3's, 4's, 5's and 10's.
 - Calendar activities enable learners to order the months and revise ordinals.
 - Graph – a weather graph can be completed.
 - Bonds of 10 are introduced with many opportunities to reinforce these.
 - Measurement activities involving comparisons of height, length, width using related vocabulary.
 - Capacity – litre;
 - Identifying coins and shapes are included.

1.12.6 LEARNER SECTION

1.12.7 Content

1.12.7.1 ACTIVITY: Mass, Doubling, Halving [LO 1.1, LO 1.3, LO 1.9, LO 1.10, LO 2.2, LO 4.6]

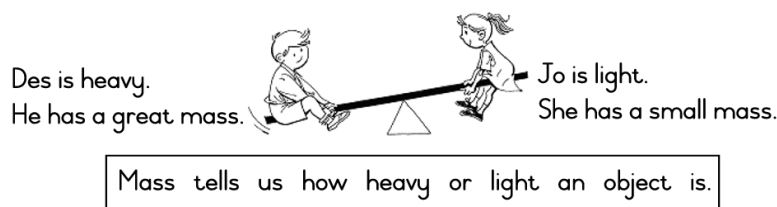


Figure 1.65

- Work in four groups:

You need: a wooden block, a large stone, a shoe, a book and a lunch box.

Group 1:

Compare the mass of the 5 objects by estimating.
Arrange them from the lightest to the heaviest.

Group 2:

Compare their mass. Use a balance scale.
Arrange them from the lightest to the heaviest.

Group 3:

Compare their mass by estimating.
Arrange them from the heaviest to the lightest.

Group 4:

Compare their mass. Use a balance scale.
Arrange them from the heaviest to the lightest.

LO 4.6	
--------	--

Table 1.68

- Think of three different ways to double 6.
 - I decided _____ was the best way.

 - Double 7 in three different ways:
 - Double 8 in any way.
 - Double 9 in any way.

 - Double these numbers:
- 4 _____ ; 7 _____ ; 9 _____ ; 8 _____ ; 6 _____

LO 1.10	
---------	--

Table 1.69

1.12.7.1.1 “ Flip the Coin ”

1				5					
									20
	22								
							38		
									50

Table 1.70

- Fill in the missing numbers on the block.
- Count to 20 and back to 0.
- Count to 30 and back to 0.
 - Count to 40 and back to 0.
 - Count to 50 and back to 0.
- Choose a friend. Take turns to flip the coin on the block. Read the number it lands on.
 - Complete these patterns. The number block will help you.

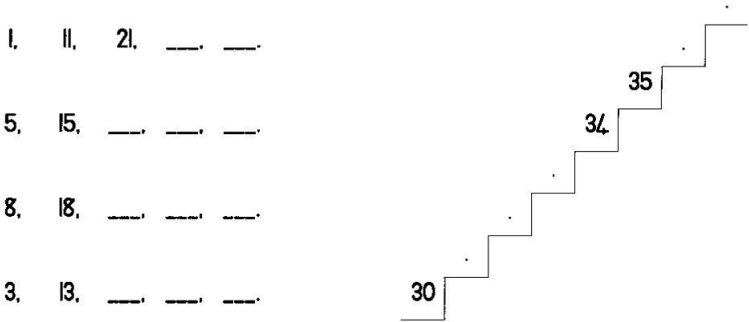


Figure 1.66

LO 1.1		LO 1.3		LO 2.2	
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Table 1.71

1.12.7.1.2 We play

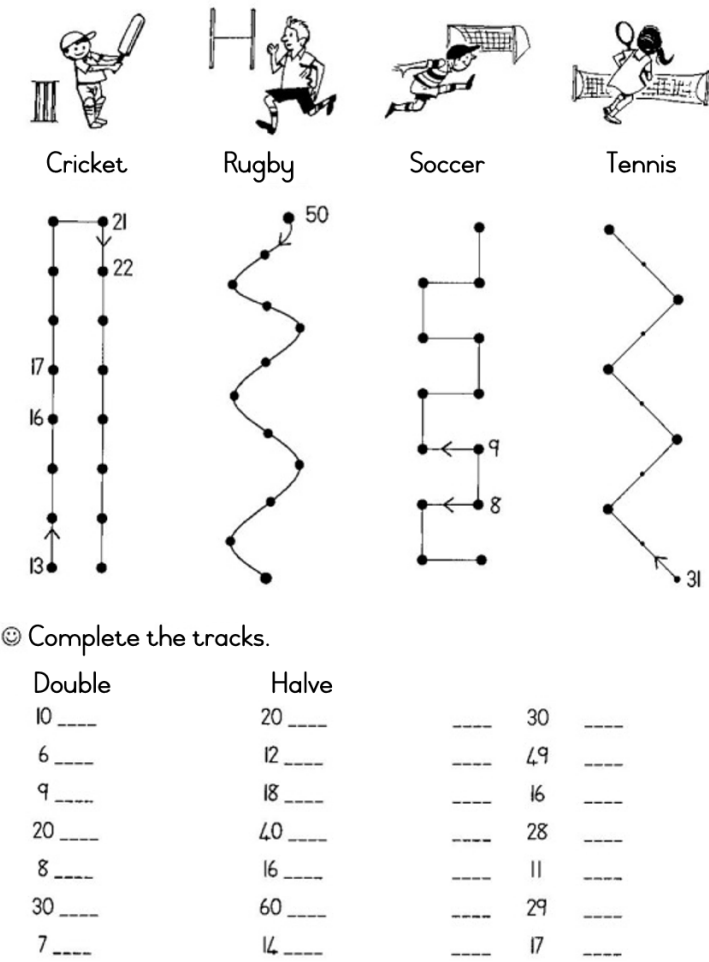


Figure 1.67

LO 1.10		LO 2.2	
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Table 1.72

1.12.7.1.3 What fun we had!

- Mike made 8 runs in a cricket match.
- Henry made twice as many. How many runs did Henry make?

Henry made _____ runs.
Write the number sentence; 8 + _____.

- Our team scored 10 points in rugby.

- The blue team scored 7 points less. How many points did the blue team score?

They scored _____ points.

Write the number sentence; _____.

- Sally played 5 games of tennis on Monday, 5 on Tuesday and 5 on Wednesday. How many games did she play altogether?

She played _____ games of tennis.

Write the number sentence; _____.

- Anne's netball team scored 16 goals. Pat's team only scored half as many.

Pat's team scored _____ goals.

- The 'A' soccer team beat the 'B' soccer team with 1 goal. If the 'A' team scored 19 goals, how many goals did the 'B' soccer team score?

The 'B' soccer scored _____ goals.

Write the number sentence _____.

LO 1.9	
--------	--

Table 1.73

1.12.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20.

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.1 building up and breaking down numbers;

1.10.2 doubling and halving;

1.10.3 using concrete apparatus (e.g. counters);

1.10.4 number-lines;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.6: We know this when the learner estimates, measures, compares and orders three-dimensional objects using non-standard measures.

1.13 Measure¹³

1.13.1 MATHEMATICS

1.13.2 Mathematics in the world around us

1.13.3 EDUCATOR SECTION

1.13.4 Memorandum

1.13.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Friends
- **Social Justice:** Friends should spend time together, e.g. playing games. Discuss in small groups what your attitude towards your friends should be when you play together.
- **A healthy environment:** Why is sport important? Discuss the safety precautions needed when participating in sport at school.
- **Inclusively:** Who should be allowed to participate in sport at school? Only team players? Or should the school accommodate everyone? Make you own graph of which learners participate in sport.

- Number concept is extended to 50.
- Counting in 2's, 3's, 4's, 5's and 10's.
- Calendar activities enable learners to order the months and revise ordinals.
- Graph – a weather graph can be completed.
- Bonds of 10 are introduced with many opportunities to reinforce these.
- Measurement activities involving comparisons of height, length, width using related vocabulary.
- Capacity – litre;
- Identifying coins and shapes are included.

¹³This content is available online at <<http://cnx.org/content/m32459/1.1/>>.

1.13.6 LEANER SECTION

1.13.7 Content

1.13.7.1 ACTIVITY: Measure [LO 1.8, LO 1.9, LO 1.10, LO 4.6, LO 4.7]



Figure 1.68

Mamma skink 4 koppies melk van 1 liter.

Sy skink 3 glase melk van 1 liter.

- She will need _____ litres for 8 cups of milk.
- She will need _____ litres for 9 glasses.
- Show how you found out:
- Des drinks 16 cups of milk a week.
- His mom will have to buy _____ litres of milk.
- Show how you found out:
- Look through a catalogue and find other things we buy by the litre. Paste them at the back of this page.

LO 4.7	
--------	--

Table 1.74

Mom bakes muffins for breakfast.

She puts 5 muffins in a pan.

- Complete:

Pan/pans	1	2	3	4	5	6	7	8	9	10
muffins	5	10								

Table 1.75

- How many pans must she bake to have 40 muffins?

_____ pans

- How many muffins will she have if she bakes 3 pans?

_____ muffins

- Mom shares out 10 muffins between 2 children. Each will get _____ muffins.
- Mom has 12 muffins on the plate. She gives half to Granny. Granny will get _____ muffins.
- Mom cools 8 muffins on one tray. She can cool _____ muffins on two trays.
- Double these numbers:

6 _____
20 _____
8 _____
5 _____
7 _____
4 _____
9 _____
10 _____
30 _____

LO 1.8		LO 1.9		LO 1.10	
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Table 1.76

1.13.7.1.1 We can measure

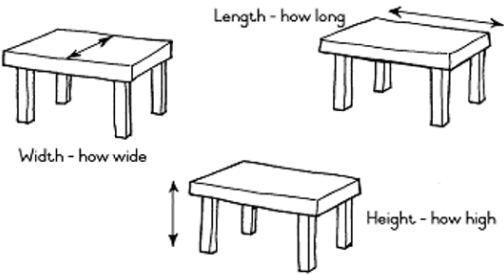


Figure 1.69

- I can measure the length, the width and the height of my table, the windowsill, the mat and my chair with things like:



Figure 1.70

- To measure the length of my table I would use _____.

I guess it will measure about _____.

I measured the length of my table. It is _____.

- To measure the width of my book I would use _____.

I guess it will measure about _____.

I measured the width of my book. It is _____.

LO 4.6	
--------	--

Table 1.77

1.13.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assesseringstandaard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20.

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.1 building up and breaking down numbers;

1.10.2 doubling and halving;

1.10.3 using concrete apparatus (e.g. counters);

1.10.4 number-lines;

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.6: We know this when the learner estimates, measures, compares and orders three-dimensional objects using non-standard measures.

Assessment Standard 4.7: We know this when the learner works with standard measures.

1.14 Money¹⁴

1.14.1 MATHEMATICS

1.14.2 Mathematics in the world around us

1.14.3 EDUCATOR SECTION

1.14.4 Memorandum

1.14.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Friends
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- Capacity – litre;
- Identifying coins and shapes are included.

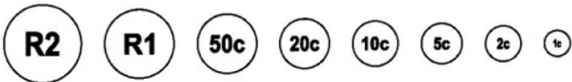
1.14.6 LEARNER SECTION

1.14.7 Content

1.14.7.1 ACTIVITY: Money [LO 1.1, LO 1.4, LO 1.6, LO 1.9, LO 2.2, LO 3.1]

- My friends and I have saved our money.

¹⁴This content is available online at <<http://cnx.org/content/m32507/1.1/>>.



R = Rand c = cents

Draw the coins:		
I have R2 and 50c. I have R2,50.		I save 50c more. Now I have _____.
Ann has R3 and 15c. She has R3,15.		She saves R1 more. Now she has _____.
Mike has R3 and 20c. He has R3,20.		He spends R1,20. Now he has _____.
Sally has R5.		She saves R2 more. Now she has _____.

😊 Count their money

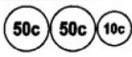

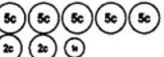
 _____	 _____	 _____
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Figure 1.71

LO 1.6	
--------	--

Table 1.78

1.14.7.1.1 We visit the tuck shop:

Sweets 50c

Hotdogs R2

Chips 50c

Cool drink R1

Ice Cream R2

- Sisulu has R5. He buys a hotdog and a cool drink. He spends _____. He has _____ left.
- Draw the money he has left.
- Tom has R10. He buys 2 hotdogs, 2 cool drinks and 2 ice creams. He spends _____. He has _____ left.
- Draw the money he had.
- Mo buys 2 packets of sweets and 2 packets of chips for his friends. He has spent all his money. How much money did he have to spend?

- Draw the money he had.

- 4 boys: each buys 2 hotdogs.

They buy _____ hotdogs.
They pay _____ altogether.

- 3 girls: each buys 3 packets of sweets.

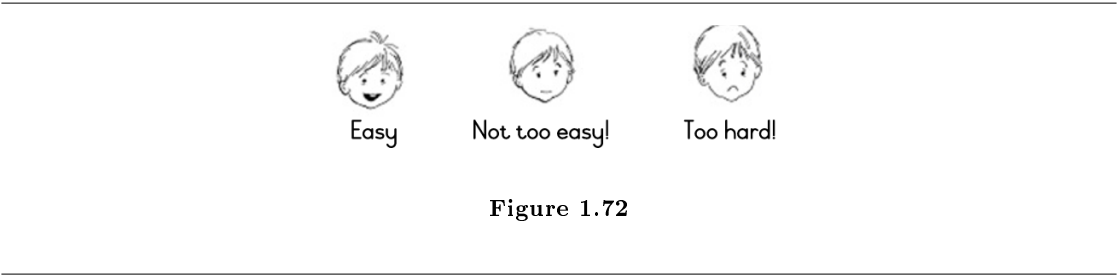
They buy _____ packets of sweets.
They pay _____ altogether.

- 5 hotdogs: each has 1 sausage.

Mom needs _____ sausages for 10 hotdogs.
I pay R _____ for 5 hotdogs.
I pay R _____ for 10 hotdogs.
Try these:

Chips:	1	2	3	4	5	6	7	8	9	10
Money:	50c	R1								


Table 1.79



Choose one to colour.

LO 1.6	
--------	--

Table 1.80



I can count!

11. 12.

30. 31.

49. 48.

6. 8.

3. 6.

4. 8.

5. 10.

25. 30.

10. 9.

12. 12.

Before and after?		Between?	
29	19	21	
18	37	39	
11	48	50	
41	13	15	

Figure 1.73

- Write their names:

11

14

18

13

10

16

17

19

15

8

12

20

LO 1.4	LO 2.2	
--------	--------	--

Table 1.81

- Say the answers to a friend, to Mummy or Daddy.

10 + 1 =	14 + 1 =	16 + 1 =	11 + 1 =
10 + 2 =	14 + 2 =	16 + 2 =	11 + 2 =
10 + 3 =	14 + 3 =	16 + 3 =	11 + 3 =

Table 1.82

$11 - 1 =$	$15 - 1 =$	$18 - 1 =$	$10 - 1 =$
$11 - 2 =$	$15 - 2 =$	$18 - 2 =$	$10 - 2 =$
$11 - 3 =$	$15 - 3 =$	$18 - 3 =$	$10 - 3 =$

Table 1.83

$12 + 1 =$	$17 + 1 =$	$13 + 1 =$	$15 + 1 =$
$12 + 2 =$	$17 + 2 =$	$13 + 2 =$	$15 + 2 =$
$12 + 3 =$	$17 + 3 =$	$13 + 3 =$	$15 + 3 =$

Table 1.84

$19 - 1 =$	$9 - 1 =$	$14 - 1 =$	$17 - 1 =$
$19 - 2 =$	$9 - 2 =$	$14 - 2 =$	$17 - 2 =$
$19 - 3 =$	$9 - 3 =$	$14 - 3 =$	$17 - 3 =$

Table 1.85

$8 + _ = 10$	$5 + _ = 10$	$10 - 7 =$	$10 - 4 =$
$6 + _ = 10$	$7 + _ = 10$	$10 - 5 =$	$10 - 2 =$
$2 + _ = 10$	$4 + _ = 10$	$10 - 6 =$	$10 - 9 =$

Table 1.86

LO 1.9	
--------	--

Table 1.87**1.14.7.1.2 Mathematics and shapes:**

- Count all the triangles. _____ triangles.

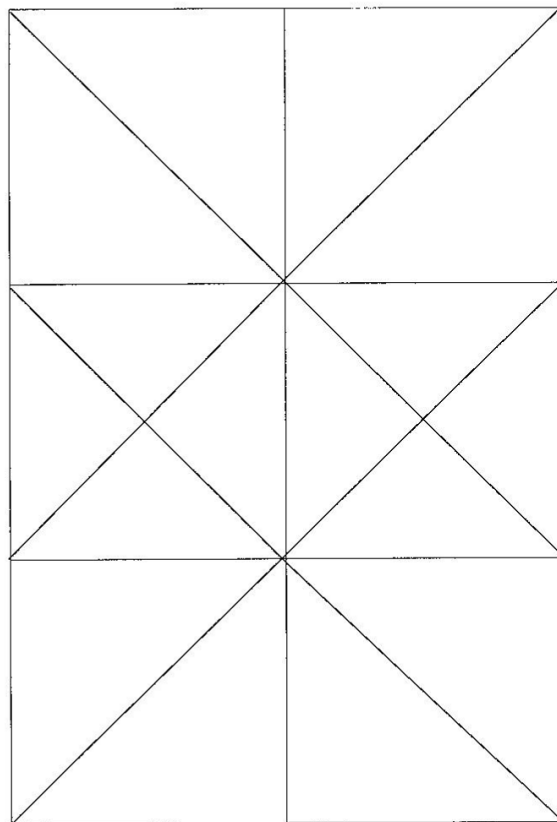


Figure 1.74

- Count all the squares. _____ squares.
- Count all the rectangles. _____ rectangles.
- Look at the pattern from all the sides.

LO 1.1		LO 3.1	
--------	--	--------	--

Table 1.88

1.14.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

1.4.1 whole numbers to at least 2-digit numbers;

1.4.2 common fractions including halves and quarters;

Assessment Standard 1.6: We know this when the learner solves money problems involving totals and change in rand and cents;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

1.9.2 multiplication of whole numbers with solutions to at least 20.

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures.

Chapter 2

Term 2

2.1 Number sentences¹

2.1.1 MATHEMATICS

2.1.2 Mathematics in the world around us

2.1.3 EDUCATOR SECTION

2.1.4 Memorandum

2.1.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
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5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
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9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Friends
- **Social Justice, Human Rights and a healthy environment:** “I am in Grade 2 with many other children. Each learner needs to be happy. The educator needs a suitable learning environment in order to teach us.”
- Discuss the learner’s responsibility to create such an environment.
- Taking turns on the jungle gym is important – why? Discuss safety, manners, co-operation, etc.
- Learners extend their number concept to 109 on the “jungle gym”. The activities include ordinals, names, symbols and counting forward and backward.
- Position is established by places in the classroom, using a floor map of the room.

¹This content is available online at <<http://cnx.org/content/m32462/1.1/>>.

- A graph is designed to be completed by collecting information.
- Addition and subtraction are extended to +4, -4, +5, -5, +6, -6, +7, -7.
- Bonds of 10 and 11 are discovered.
- Directions are given to draw and colour a shape.
- Measuring with thumbs and comparison of these measurements using the related vocabulary.

2.1.6 LEANER SECTION

2.1.7 Content

2.1.7.1 ACTIVITY: Number sentence [LO 1.1, LO 1.2, LO 1.4, LO 2.2]

- Slips and slides on the jungle gym.
- Fill in the numbers as you climb the steps and slide down the slides.

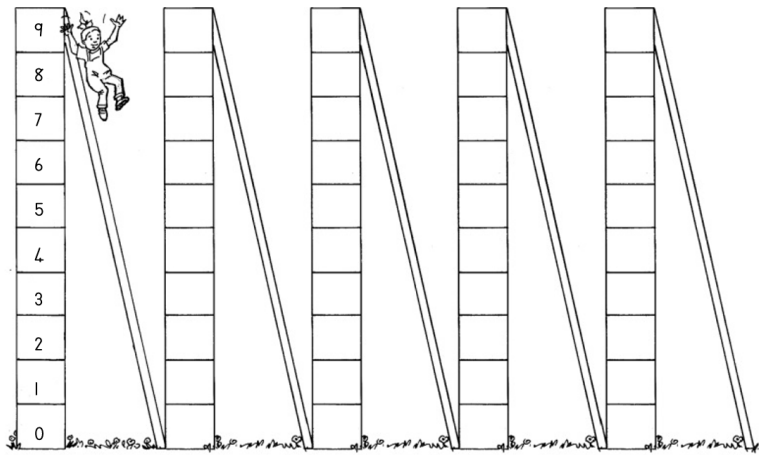


Figure 2.1

LO 1.1	LO 2.2
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Table 2.1

- Fun with numbers on the Jungle Gym.
 - Count to a friend.
2. Count all the numbers from $0 \rightarrow 59$ on the Jungle Gym.
3. Begin from 0, count in 2's to 58.
- These are the _____ numbers (even, uneven)
1. Begin at 58. Count back in 2's to 0.
2. Begin from 1, count in 2's to 59.

- These are the _____ numbers (even, uneven)
1. Begin from 59. Count back in 2's to 1.
 2. Begin from 0. Count in 3's to 30.
- Write them:
- 0, 3, __, __, __, __, __, __, __, __, __, 30
1. Begin from 30. Count back in 3's to 0.
- Begin from 30. Count back in 3's to 0.
- 30, 27, __, __, __, __, __, __, __, __, __, 0
2. Tel in 10 'e tot by 100.
- Write them:
- 10, __, __, __, __, __, __, __, __, __, 100

LO 1.2	
--------	--

Table 2.2

- Which number comes between _____?

16	___	18	8	___	10
24	___	26	44	___	46
31	___	33	27	___	29
48	___	50	1	___	3
39	___	41	30	___	32

Figure 2.2

- Write their names:

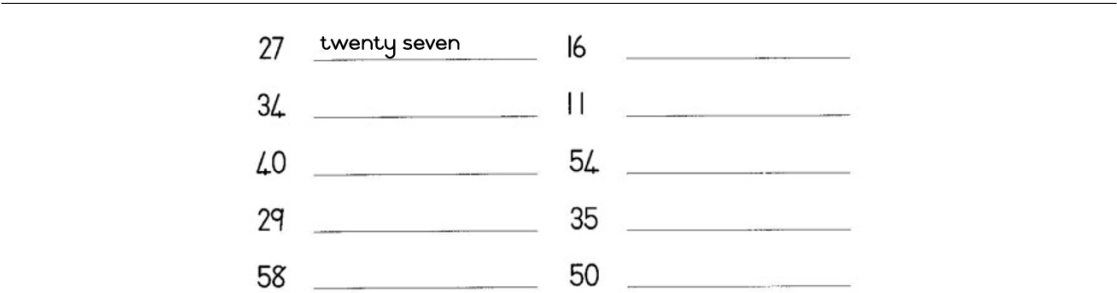


Figure 2.3

- Count in 10's:

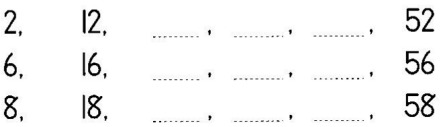


Figure 2.4

- Divide into four groups.

Group 1	Group 2
<ul style="list-style-type: none">• Discuss what is the same about 14 and 41.• Discuss what is different about 14 and 41.• Draw and group the tens.	<ul style="list-style-type: none">• Discuss what is the same about 23 and 32.• Discuss what is different about 23 and 32.• Draw and group the tens.
14	23
41	32
<ul style="list-style-type: none">• Write their names.	<ul style="list-style-type: none">• Write their names.
<i>continued on next page</i>	

14	23
41	32
<ul style="list-style-type: none">• Which number comes before 14?• Which number comes before 41?• Which number comes after 14?• Which number comes after 41?	<ul style="list-style-type: none">• Which number comes before 23?• Which number comes before 32?• Which number comes after 23?• Which number comes after 32?
<ul style="list-style-type: none">• Report back to class.	<ul style="list-style-type: none">• Report back to class.

Table 2.3

LO 1.4	
--------	--

Table 2.4

Group 3	Group 4
<ul style="list-style-type: none">• Discuss what is the same about 11 and 31.• Discuss what is different about 11 and 31.• Draw and group the tens.	<ul style="list-style-type: none">• Discuss what is the same about 31 and 43.• Discuss what is different about 31 and 43.• Draw and group the tens.
11	31
31	43
<ul style="list-style-type: none">• Write their names.	<ul style="list-style-type: none">• Write their names.
11	31
31	43
<ul style="list-style-type: none">• Which number comes before 11?• Which number comes before 31?• Which number comes after 11?• Which number comes after 31?	<ul style="list-style-type: none">• Which number comes before 31?• Which number comes before 43?• Which number comes after 31?• Which number comes after 43?
<ul style="list-style-type: none">• Report back to class.	<ul style="list-style-type: none">• Report back to class.

Table 2.5

LO 1.4	
--------	--

Table 2.6

- We’re on the slips and slides again.

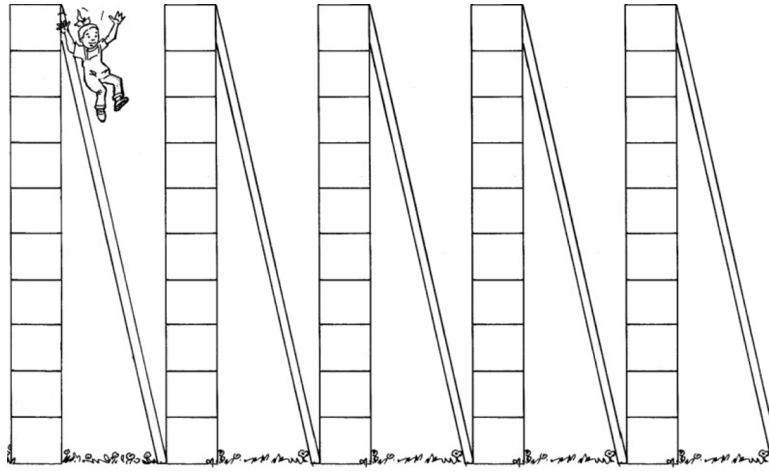


Figure 2.5

LO 1.1		LO 2.2	
--------	--	--------	--

Table 2.7

- Count to one another.
1. Count all the numbers from 60 \rightarrow 109 on the Jungle Gym.
 2. Begin from 60, count in 2's to 108.
 - These are the _____ numbers (even, uneven)
 3. Begin at 108. Count back in 2's to 60.
 4. Begin from 61, count in 2's to 109.
 - These are the _____ numbers (even, uneven)
 5. Begin from 109. Count back in 2's to 1.
 6. Begin from 60. Count in 3's to 90.
 - Write them:
- 60, 63, __, __, __, __, __, __, __, __, 90
7. Begin from 90. Count back in 3's to 60.
- Write them:
- 90, 87, __, __, __, __, __, __, __, __, 0
8. Count back in 10's from 100 to 0.
- Write them:

100, __, __, __, __, __, __, __, __, __, __, 0

LO 1.2	
--------	--

Table 2.8

- Which number comes between _____?

64	__	66	69	__	71
78	__	80	101	__	103
81	__	83	85	__	87
96	__	98	90	__	92
72	__	74	79	__	81

Figure 2.6

- Write their names:

64	sixty four	73	_____
80	_____	89	_____
96	_____	90	_____
85	_____	92	_____
100	_____	63	_____

Figure 2.7

- Count in 10's:

61,	71,	.....,	.....,	101
63,	73,	.....,	.....,	103
69,	79,	.....,	.....,	109

Figure 2.8

2.1.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.3 fives from any multiple of 5 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

- 1.4.1 whole numbers to at least 2-digit numbers;
- 1.4.2 common fractions including halves and quarters;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

2.2 Establishing position in the classroom²

2.2.1 MATHEMATICS

2.2.2 Mathematics in the world around us

2.2.3 EDUCATOR SECTION

2.2.4 Memorandum

2.2.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;

²This content is available online at <<http://cnx.org/content/m32441/1.1/>>.

5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Friends
- **Social Justice, Human Rights and a healthy environment:** “I am in Grade 2 with many other children. Each learner needs to be happy. The educator needs a suitable learning environment in order to teach us.”
- Discuss the learner’s responsibility to create such an environment.
- Taking turns on the jungle gym is important – why? Discuss safety, manners, co-operation, etc.
- Learners extend their number concept to 109 on the “jungle gym”. The activities include ordinals, names, symbols and counting forward and backward.
- Position is established by places in the classroom, using a floor map of the room.
- A graph is designed to be completed by collecting information.
- Addition and subtraction are extended to +4, -4, +5, -5, +6, -6, +7, -7.
- Bonds of 10 and 11 are discovered.
- Directions are given to draw and colour a shape.
- Measuring with thumbs and comparison of these measurements using the related vocabulary.

2.2.6 LEARNER SECTION

2.2.7 Content

2.2.7.1 ACTIVITY: Establishing position in the classroom [LO 1.2, LO 1.9, LO 2.2, LO 3.5, LO 3.6, LO 3.7, LO 3.8, LO 4.6]

- This is my classroom

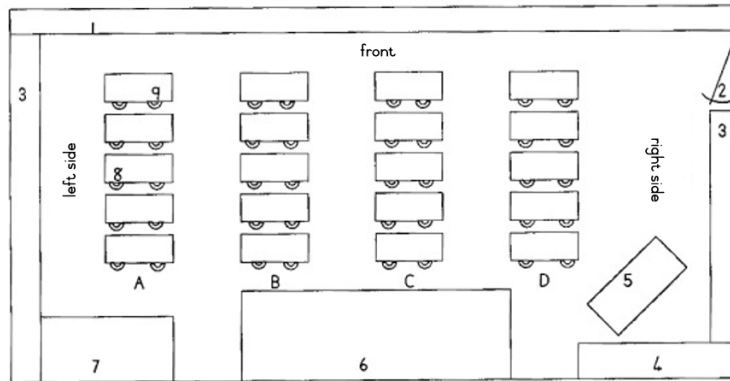


Figure 2.9

- Study the map of the classroom.
- Make sure you know where everything is.

1. _____ is the blackboard. Colour it.
2. _____ is the door. Colour it.
3. _____ is the windows. Colour them.
4. _____ is the cupboards. Colour it.
5. _____ is the teacher's table. Colour it.
6. _____ is the mat. Colour it.
7. _____ is the reading corner. Colour it.
8. _____ is my desk. Colour it.
9. _____ is Henry's desk. Colour it.

- A is the row that I sit in.
- Where is the front of the class?
- Where is the back of the class?
- Which is the left side?
- Which is the right side?

LO 3.5		LO 3.6		LO 3.7		LO 3.8	
--------	--	--------	--	--------	--	--------	--

Table 2.9

- Complete:
- How many pupils do you think are in my Grade 2 class? Guess first.
- Write:

I guessed _____ pupils.

Count the pupils in 2's.

I counted _____ pupils.

- Tick that fits.

I guessed correctly.

I guessed too many.

I guessed too few.

- Use counters or drawings if you need to find out the answers.

Use counters or drawings if you need to find out the answers.

2 boys will have _____ eyes.

3 boys will have _____ eyes.

4 boys will have _____ eyes.

5 boys will have _____ eyes.

If 1 girl has 2 ears,

2 girls will have _____ ears.

3 girls will have _____ ears.

4 girls will have _____ ears.

5 girls will have _____ ears.

- Complete:

2, 4, 6, ____, ____, ____, ____, ____, ____, ____, ____, ____, 26.

LO 1.2		LO 1.9		LO 2.2	
--------	--	--------	--	--------	--

Table 2.10

2.2.7.1.1 In my classroom

- Complete:

1. I sit in row _____. (B or A)

2. My desk is on the _____ side of the room. (right, left)

3. The reading corner is _____ of the room. (at the back, in the front)

4. I must fetch the books in the cupboard _____ of the room. (at the back, in the front)

5. My teacher's table is on the _____ side of the room. (right, left)

6. My teacher's table is on the _____ side of the room. (right, left)

7. My desk is the _____ desk from the front. (first, third)

8. Henry's desk is the _____ desk from the front. (first, third)

9. The door is on the _____ side of the room. (right, left)

- Colour each pencil a different colour.

- Complete:



Figure 2.10

LO 3.5		LO 3.8	
--------	--	--------	--

Table 2.11**2.2.7.1.2 I measure with my thumb**

- Can you?
 - Measure the lengths of the following objects on your map. Use your thumb.
 - Complete. . . .
1. The length of the cupboard is the same as _____ thumbs.
 2. The length of the board is the same as _____ thumbs.
 3. The length of the board is the same as _____ thumbs.
 4. The length of the windows (right side) is the same as _____ thumbs.
 5. The length of the windows (left side) is the same as _____ thumbs.
 6. The length of the reading corner is the same as _____ thumbs.
 7. The distance from my table to the board is the same as _____ thumbs.
 8. The distance from my table to the back wall is the same as _____ thumbs.

LO 4.6	
--------	--

Table 2.12**2.2.8 Assessment**

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.3 fives from any multiple of 5 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.5: We know this when the learner recognises three-dimensional objects from different positions;

Assessment Standard 3.6: We know this when the learner positions self within the classroom or three-dimensional objects in relation to each other;

Assessment Standard 3.7: We know this when the learner describes positional relationships (alone and/or as a member of a group or team) between three-dimensional objects or self and a peer;

Assessment Standard 3.8: We know this when the learner understands direction.

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.6: We know this when the learner estimates, measures, compares and orders three-dimensional objects using non-standard measures.

2.3 Graphs, adding and subtracting³

2.3.1 MATHEMATICS

2.3.2 Mathematics in the world around us

2.3.3 EDUCATOR SECTION

2.3.4 Memorandum

2.3.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Friends
- **Social Justice, Human Rights and a healthy environment:** “I am in Grade 2 with many other children. Each learner needs to be happy. The educator needs a suitable learning environment in order to teach us.”
- Discuss the learner’s responsibility to create such an environment.
- Taking turns on the jungle gym is important – why? Discuss safety, manners, co-operation, etc.
- Learners extend their number concept to 109 on the “jungle gym”. The activities include ordinals, names, symbols and counting forward and backward.
- Position is established by places in the classroom, using a floor map of the room.
- A graph is designed to be completed by collecting information.
- Addition and subtraction are extended to +4, -4, +5, -5, +6, -6, +7, -7.
- Bonds of 10 and 11 are discovered.
- Directions are given to draw and colour a shape.
- Measuring with thumbs and comparison of these measurements using the related vocabulary.

³This content is available online at <<http://cnx.org/content/m32442/1.1/>>.

2.3.6 LEANER SECTION

2.3.7 Content

2.3.7.1 ACTIVITY: Graphs, Adding and Subtracting [LO 1.2, LO 1.4, LO 1.8, LO 1.10, LO 2.2, LO 5.1, LO 5.2, LO 5.4, LO 5.5]

2.3.7.2 I need to make a graph

The graph will help me find out ...

- which is the longest.
 - which is the shortest.
 - which is the furthest.
 - which is the nearest.
-
- For each thumb you counted, colour one block.

My graph on lengths
The length of...

the cupboard													
the board													
the mat													
the windows (right)													
the windows (left)													
the reading corner													

Table 2.13

- Now I can see.....
-
1. The _____ is the longest.
 2. The _____ is the shortest.
 3. The length of the cupboard is _____ than the length of the mat. (longer, shorter)
 4. The length of the board is _____ than the windows on the left. (longer, shorter)

LO 5.1		LO 5.2		LO 5.4		LO 5.5	
--------	--	--------	--	--------	--	--------	--

Table 2.14

2.3.7.3 Play with numbers

- Begin from 1. Draw a line from 1 to 2, from 2 to 3, etc, until you get to 40.

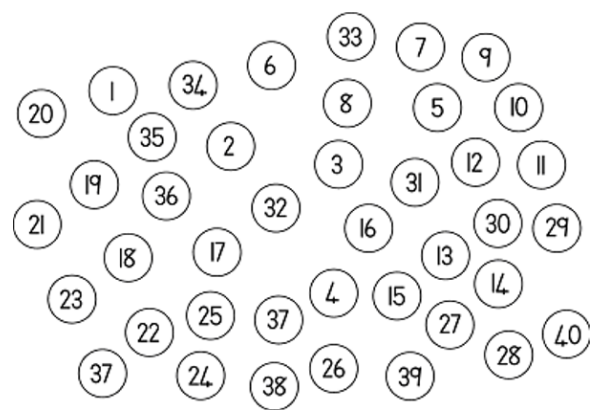


Figure 2.11

- Make each number one more and one less.

15	16	17		49	
	34			58	
	40			75	
	51			88	
	28			94	
	19			90	

Figure 2.12

LO 1.2		LO 1.4	
--------	--	--------	--

Table 2.15

	+ 1	+ 3	- 1	+ 4	- 2	+ 10
30						
28						
37						
21						
19						

Table 2.16

	- 2	- 1	+ 3	+ 1	+ 2	- 10
32						
44						
35						
40						
47						

Table 2.17

LO 1.8	
--------	--

Table 2.18

2.3.7.4 Rename numbers

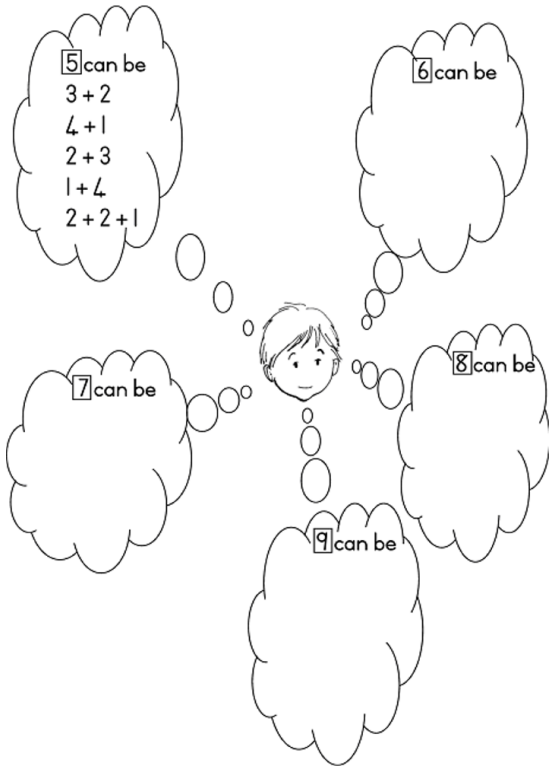


Figure 2.13

LO 1.10	
---------	--

Table 2.19

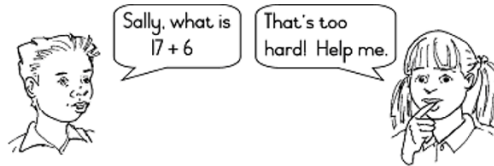


Figure 2.14

-
- Can you show Sally different ways in which she can make her sum easier? Write or draw them here.
 - Des has a plan.

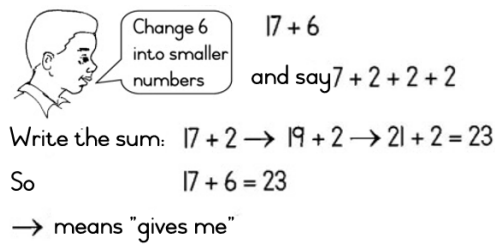



Figure 2.15

-
- Liz has another plan.



Add 3 to 17 to
make 20. Then
add 3 more.

$17 + 6$
and say $17 + 3 + 3$

Write the sum: $17 + 3 \rightarrow 20 + 3 = 23$
So $17 + 6 = 23$

Figure 2.16

LO 1.8	
--------	--

Table 2.20

- Let’s use the plan Des had.
- Use smaller numbers for the ones in circles.
- Rename them.
- Use arrows to say “gives me”.

-
1. $14 + 5 = \square$
 $14 + 3 + 2 = \square$
 $14 + 3 \rightarrow \underline{\quad} + 2 = \underline{\quad}$
 So: $14 + 5 = \underline{\quad}$
2. $15 + 6 = \square$
 $15 + \underline{\quad} + \underline{\quad}$
 $15 + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} = \underline{\quad}$
 So: $15 + 6 = \underline{\quad}$
3. $16 + 5 = \square$
 $16 + \underline{\quad} + \underline{\quad} + \underline{\quad}$
 $16 + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} = \underline{\quad}$
 So: $16 + 5 = \underline{\quad}$
- ☺ Complete
 $14, 16, \underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}, 30.$

Figure 2.17

LO 1.8		LO 2.2	
--------	--	--------	--

Table 2.21

- Do these sums in the same way by renaming the number in the circle.

1. $22 + \textcircled{6} = \square$
 $22 + \underline{\quad} + \underline{\quad}$
 $22 + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} = \underline{\quad}$
 So: $22 + 6 = \underline{\quad}$

2. $25 + \textcircled{7} = \square$
 $25 + \underline{\quad} + \underline{\quad} = \square$
 $25 + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} = \underline{\quad}$
 So: $25 + 7 = \underline{\quad}$

3. $21 + \textcircled{8} = \square$
 $21 + \underline{\quad} + \underline{\quad} + \underline{\quad} = \square$
 $21 + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} \rightarrow \underline{\quad} + \underline{\quad} = \underline{\quad}$
 So: $21 + 8 = \underline{\quad}$

☺ Complete

3. 6. $\underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}, \underline{\quad}$

Figure 2.18

LO 1.8	LO 2.2	
--------	--------	--

Table 2.22

2.3.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.3 fives from any multiple of 5 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

- 1.4.1 whole numbers to at least 2-digit numbers;
- 1.4.2 common fractions including halves and quarters;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;
- 1.10.2 doubling and halving;
- 1.10.3 using concrete apparatus (e.g. counters);
- 1.10.4 number-lines;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.1: We know this when the learner collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posed by the teacher (e.g. ‘how many learners are there in each classroom?’);

Assessment Standard 5.2: We know this when the learner sorts physical objects to one attribute chosen by the teacher;

Assessment Standard 5.4: We know this when the learner draws pictures and constructs pictographs that have a 1-1 correspondence between own data and representations;

Assessment Standard 5.5: We know this when the learner describes own or a peer’s collection of objects, explains how it was sorted, and answers questions about it.

2.4 Bonds of 10 and 11⁴

2.4.1 MATHEMATICS

2.4.2 Mathematics in the world around us

2.4.3 EDUCATOR SECTION

2.4.4 Memorandum

2.4.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

• Integration of Themes: Friends

⁴This content is available online at <<http://cnx.org/content/m32443/1.1/>>.

- **Social Justice, Human Rights and a healthy environment:** “I am in Grade 2 with many other children. Each learner needs to be happy. The educator needs a suitable learning environment in order to teach us.”
- Discuss the learner’s responsibility to create such an environment.
- Taking turns on the jungle gym is important – why? Discuss safety, manners, co-operation, etc.
- Learners extend their number concept to 109 on the “jungle gym”. The activities include ordinals, names, symbols and counting forward and backward.
- Position is established by places in the classroom, using a floor map of the room.
- A graph is designed to be completed by collecting information.
- Addition and subtraction are extended to $+4$, -4 , $+5$, -5 , $+6$, -6 , $+7$, -7 .
- Bonds of 10 and 11 are discovered.
- Directions are given to draw and colour a shape.
- Measuring with thumbs and comparison of these measurements using the related vocabulary.

2.4.6 LEARNER SECTION

2.4.7 Content

2.4.7.1 ACTIVITY: Bonds of 10 and 11 [LO 1.8, LO 1.9, LO 1.12, LO 3.8]

The “Under Ten” Team wear caps and jerseys with numbers that add up to 10.

- Help Sisulu sort them correctly.

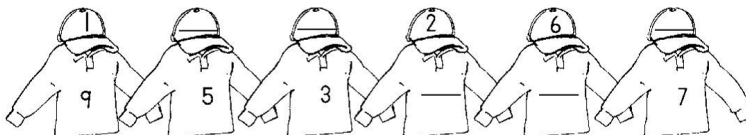


Figure 2.19

- Find out how the “Under Eleven” Team’s caps and jerseys can be sorted so that their numbers add up to 11.

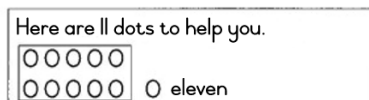


Figure 2.20

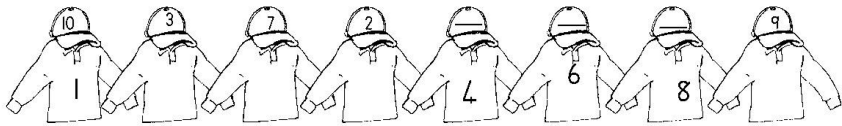


Figure 2.21

10	11
9 + 1	10 + 1
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
• _____	_____

Figure 2.22

These numbers add up to.....

LO 1.9	
--------	--

Table 2.23

😊 Draw a ✓ if the number sentence is correct. (true number sentence)

😊 Draw a X if the number sentence is wrong.

$14 + 2 = 16$	<input type="checkbox"/>	$31 + 2 = 33$	<input type="checkbox"/>
$16 = 14 + 2$	<input type="checkbox"/>	$33 = 31 + 2$	<input type="checkbox"/>
$16 = 10 + 6$	<input type="checkbox"/>	$33 = 30 + 3$	<input type="checkbox"/>
$23 = 20 + 3$	<input type="checkbox"/>	$45 = 40 + 5$	<input type="checkbox"/>
$27 = 20 + 7$	<input type="checkbox"/>	$17 = 10 + 10$	<input type="checkbox"/>
$61 = 1 + 60$	<input type="checkbox"/>	$77 = 76 + 1$	<input type="checkbox"/>
$61 - 1 = 60$	<input type="checkbox"/>	$77 - 7 = 70$	<input type="checkbox"/>
$30 - 10 = 10$	<input type="checkbox"/>	$20 - 20 = 0$	<input type="checkbox"/>
$78 - 8 = 68$	<input type="checkbox"/>	$66 - 6 = 60$	<input type="checkbox"/>
$45 - 3 = 42$	<input type="checkbox"/>	$33 - 3 = 30$	<input type="checkbox"/>
$20 - 20 = 10$	<input type="checkbox"/>	$40 - 40 = 0$	<input type="checkbox"/>
$84 + 4 = 88$	<input type="checkbox"/>	$35 + 4 = 40$	<input type="checkbox"/>

Figure 2.23

- There were _____ correct.
- There were _____ wrong.
- Check with a friend.

LO 1.8		LO 1.12	
--------	--	---------	--

Table 2.24

	+ 1	+ 3	- 1	+ 4	- 2	+ 10
6	7					
11						
9						
10						
7						

Table 2.25

	- 2	- 1	+ 3	+ 1	+ 2	- 10
22						
16						
13						
8						
46						

Table 2.26

LO 1.8		LO 1.9	
--------	--	--------	--

Table 2.27

2.4.7.1.1 Directions

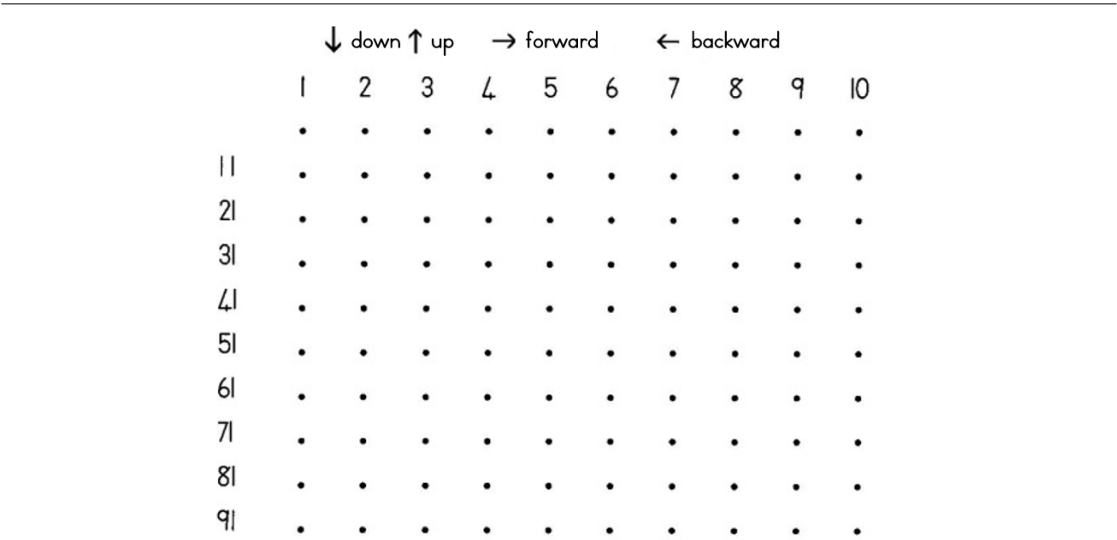


Figure 2.24

-
- Follow the directions:
 - Begin at 41. Go forward 2 dots. Move up 3 dots, forward 4, down 3, forward 2.
 - Now move down 2, back 2, down 3.
 - Now move back 4, up 3, back 2 and up 2.
 - You should be back at 41.
 - Colour the shape you drew.

LO 3.8	
--------	--

Table 2.28

2.4.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Assessment Standard 1.12: We know this when the learner checks the solution given to problems by peers.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.8: We know this when the learner understands direction.

2.5 Birthdays⁵

2.5.1 MATHEMATICS

2.5.2 Mathematics in the world around us

2.5.3 EDUCATOR SECTION

2.5.4 Memorandum

2.5.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Autumn
- **A healthy environment:** The signs of Autumn.
- This module begins with a graph of birthdays of their friends.
- Number concept and counting activities, stressing the patterns in counting, are extended to 120.
- Halving and doubling within the range 1 to 50.
- Shopping activities include word sums, directions to shops, and selecting the correct coins are included.

⁵This content is available online at <<http://cnx.org/content/m32463/1.1/>>.

- Learners complete a shopping graph.
- Bonds of 10, 11, 12, 13, 14 and 15 are introduced and consolidated with a variety of activities.
- Measuring activities reinforce the vocabulary of “a small mass”, “a great mass”, gram and kilogram.
- A recipe for muffins is included and learners experience practically the value of measurement (Technology).
- To extend their sensitivity to different cultures they create their own patterns using shapes and patterns found on huts.
- Learners learn through playing games and therefore a memory game with number sentences has been designed for them.

2.5.6 LEARNER SECTION

2.5.7 Content

2.5.7.1 ACTIVITY: Birthdays [LO 1.1, LO 1.2, LO 1.4, LO 1.7, LO 1.8, LO 4.2, LO 4.3, LO 5.1, LO 5.4, LO 5.5]

2.5.7.1.1 Birthday Celebrations

- Join the months of the year with a line from the first to the twelfth.
- Fill in my friends' names under the month in which they have their birthdays.

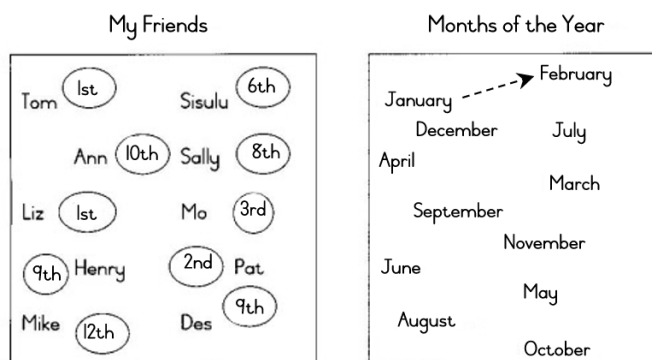


Figure 2.25

My Birthday graph

Months of the Year	January	February	March	April	May	June	July	August	September	October	November	December

continued on next page

Number of Friends													
	Tom												

Table 2.29

LO 4.2		LO 5.1		LO 5.4	
--------	--	--------	--	--------	--

Table 2.30



Figure 2.26

- Choose 10 friends.
- Write their names here:

- Find out when each of your ten friends has a birthday.
- Write the month (or the letter of the month e.g. A for April) next to each name.
- Fill in their names on “My Birthday Graph” on page 2 under the correct month.

LO 5.1		LO 5.4	
--------	--	--------	--

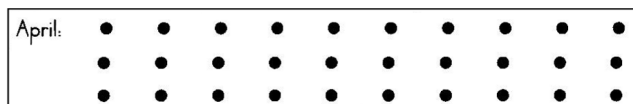
Table 2.31

- Fill in the missing words.
1. I filled in _____ (how many) children's birthdays on my graph.
 2. Most children have their birthdays in _____ (name of month).
 3. The least number of birthdays are in _____ (name of month).
 4. There are more birthdays in _____ (name of month).
than in _____ (name of month).
 5. There are fewer birthdays in _____ (name of month).
than in _____ (name of month).
 6. I must remember my best friend's birthday is in _____
 7. Use a calendar to find out how many days there are in each month.
In January May September . . .
February June October
March July November
April August December
 8. Ask your teacher to teach you to use your knuckles to find out how many days there are in each month.

LO 4.3		LO 5.5	
--------	--	--------	--

Table 2.32

- Let's count the days in April. We'll make a dot for every day.

**Figure 2.27**

- How did you count them?

In 1'e, 2's, 3'e, 5'e or 10'e?

- Draw a circle around your answer.
- June has the same number of days.
- Make a triangle for every day.
- Count the triangles in a different way.
- Draw a circle around 1's or 2's or 3's or 5's or 10's to show how you counted the triangles.



Figure 2.28

-
- Do the same with the days in September.
 - Use a circle.
 - Complete: I counted them in _____



Figure 2.29

LO 1.1		LO 1.2	
--------	--	--------	--

Table 2.33

All about April, June and September

- Look at April's days on page 4.
1. There are _____ groups of ten in _____ 30 _____ days.
 2. There are _____ groups of five in _____ days.
 3. There are _____ groups of two in _____ days.
- Write a number sentence for 1.
-
- Write a number sentence for 2.
-
- Write a number sentence for 3.
-
- If we add April's and June's days there are _____ altogether. We have doubled their days.
 - Write a number sentence for this story.

-
- If we add September's days too, the total will be _____
 - Write a number sentence.
-

- Double these numbers.

20 _____ 30 _____ 40 _____ 50 _____
 22 _____ 34 _____ 44 _____ 51 _____

LO 1.7		LO 1.8		LO 1.10	
--------	--	--------	--	---------	--

Table 2.34

2.5.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.1: We know this when the learner counts to at least 100 everyday objects reliably;

Assessment Standard 1.7: We know this when the learner solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary fractions (e.g. $\frac{1}{4}$);

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;
- 1.10.2 doubling and halving;
- 1.10.3 using concrete apparatus (e.g. counters);
- 1.10.4 number-lines;

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.2: We know this when the learner names in order the days of the week and the months of the year;

Assessment Standard 4.3: We know this when the learner calculates elapsed time;

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.1: We know this when the learner collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posed by the teacher (e.g. 'how many learners are there in each classroom?');

Assessment Standard 5.4: We know this when the learner draws pictures and constructs pictographs that have a 1-1 correspondence between own data and representations;

Assessment Standard 5.5: We know this when the learner describes own or a peer's collection of objects, explains how it was sorted, and answers questions about it.

2.6 Number patterns⁶

2.6.1 MATHEMATICS

2.6.2 Mathematics in the world around us

2.6.3 EDUCATOR SECTION

2.6.4 Memorandum

2.6.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- **Integration of Themes:** Autumn
- **A healthy environment:** The signs of Autum.
- This module begins with a graph of birthdays of their friends.
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- A recipe for muffins is included and learners experience practically the value of measurement (Technology).
- To extend their sensitivity to different cultures they create their own patterns using shapes and patterns found on huts.
- Learners learn through playing games and therefore a memory game with number sentences has been designed for them.

⁶This content is available online at <<http://cnx.org/content/m32464/1.1/>>.

2.6.6 LEANER SECTION

2.6.7 Content

2.6.7.1 ACTIVITY: Number patterns [LO 1.3, LO 1.4, LO 1.6, LO 1.8, LO 1.10, LO 2.2, LO 3.8, LO 5.4]

2.6.7.1.1 Number Patterns

- The number of days in January has been written in a pattern for you to count. Continue the counting pattern by joining the numbers with a line. Begin on 2.

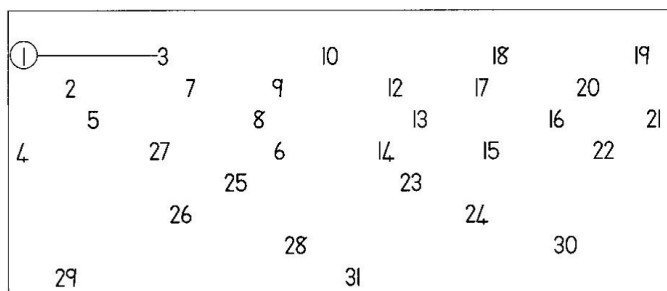


Figure 2.30

- These are all _____ (even or uneven) numbers.
- Continue the counting pattern for the days in March. Begin on 1.

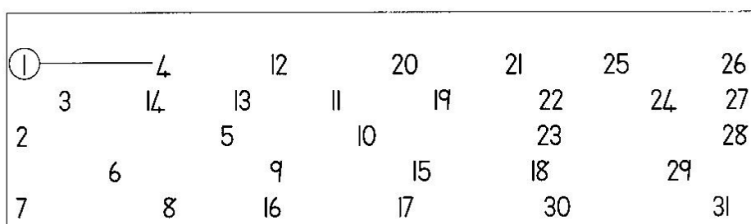


Figure 2.31

- Even numbers joined: _____
- Uneven numbers joined: _____
- Days in January and March: _____

Total:

LO 2.2	
--------	--

Table 2.35

2.6.7.1.2 Number Patterns

- Continue the counting pattern for the month of May. Begin on 2.

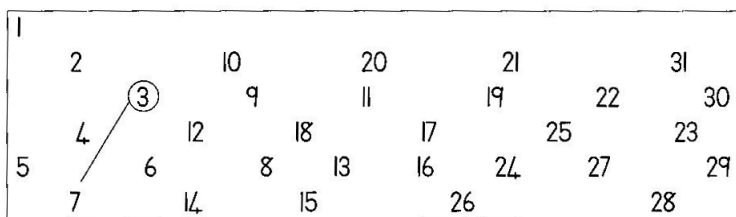


Figure 2.32

- I used _____ numbers. Even/uneven.
- Continue the counting pattern for the month of July. Begin on 1.

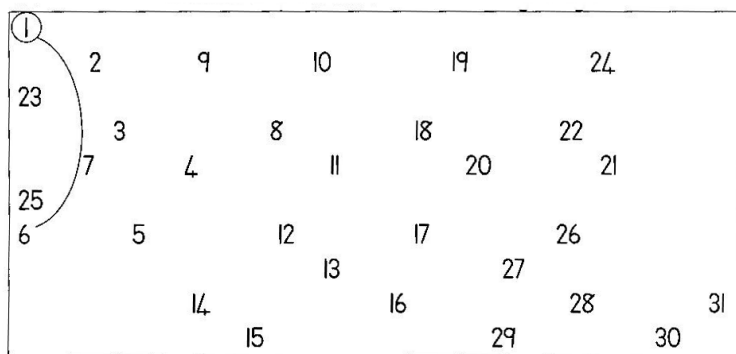


Figure 2.33

- I used these even numbers: _____
- I used these uneven numbers: _____
- Continue these counting patterns: _____

2, 12, 22, ., ., ., ., 72.
 1, 11, 21, ., ., ., ., 71.
 23, 33, 43, ., ., ., ., 93.

Figure 2.34

LO 2.2	
--------	--

Table 2.36

2.6.7.1.3 Rename these numbers

1610 + 6	24.	36.	40.	58.
51.	13.	29.	94.	62.
87.	50.	96.	83.	74.

Table 2.37

- Write these number names.

58 _____
 94 _____
 62 _____
 74 _____
 36 _____
 87 _____
 40 _____
 13 _____

- Arrange these numbers from the least to the most.

16 4 19 23 11

LO 1.3		LO 1.4		LO 1.10	
--------	--	--------	--	---------	--

Table 2.38

- Des says, "Look how much I have saved."

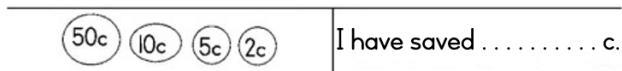


Figure 2.35

- Sisulu says, "Look how much I have saved."

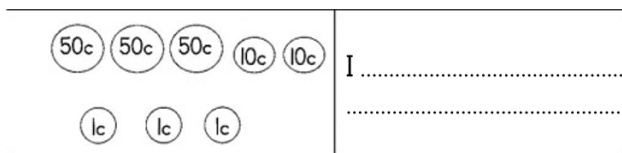


Figure 2.36

- Mo says, "Look how much I have saved."



Figure 2.37

----- has saved the most.
 ----- has saved the least.
 Sisulu has saved more than -----

- Arrange these coins from the most to the least.

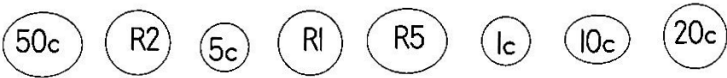


Figure 2.38

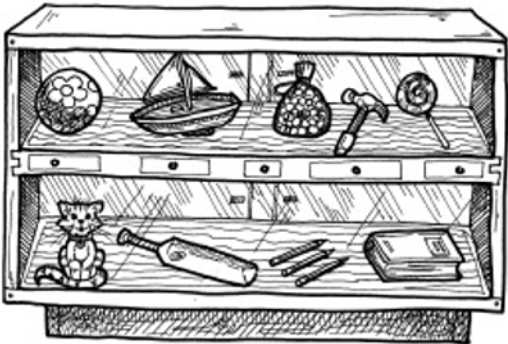
	LO 1.4	LO 1.6
---	--------	--------

Table 2.39

- Price chart

ball 60c, yacht 55c, marbles 30c, hammer 25c, lollipop 10c, kitten 75c, racket 45c, 1 pencil 20c, book 30c

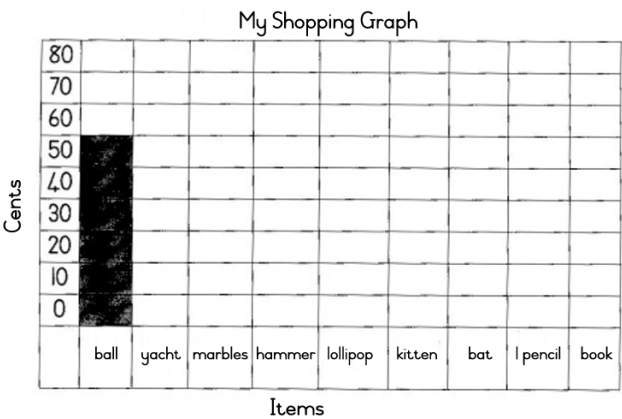


Figure 2.39

- Complete the graph.

LO 5.4	
--------	--

Table 2.40

- Read.
- Draw the coins.
- Look at the items on the previous page.

Liz bought a _____ for a _____ c.
 She paid: _____

Sally bought a _____ for _____ c.
 She paid: _____

Mike bought a _____ for _____ c.
 He paid: _____

Tom bought a _____ for _____ c.
 He paid: _____

I bought a hammer for 25c. I paid: $10c + 20c$. My change was _____

LO 1.6	
--------	--

Table 2.41

2.6.7.1.4 Money! Money! Money!

- Mom sorts out her coins to pay for :





 R9.00	<div>R2</div>
 R6.50	
 R3.25	
 99c	

Figure 2.40

LO 1.6	
--------	--

Table 2.42

2.6.7.1.5 Off to the Shops

- Begin at bus stop 50.
- Complete the road to the shoe shop.

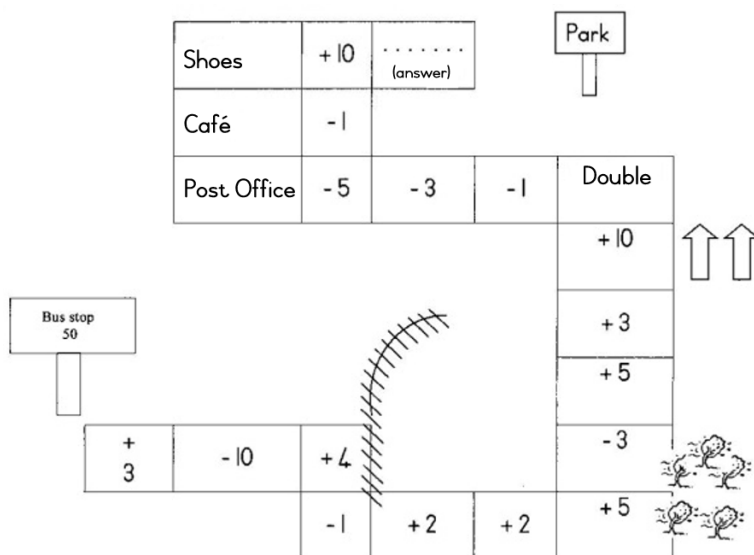


Figure 2.41

- Use these descriptions to tell Liz and Mo how to get from bus stop 50 to the shoe shop.

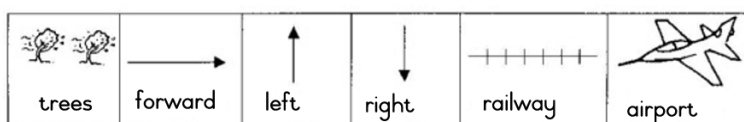


Figure 2.42

- Write the directions.

LO 1.8	LO 3.8	
--------	--------	--

Table 2.43

2.6.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.4: We know this when the learner orders, describes and compares numbers:

Assessment Standard 1.6: We know this when the learner solves money problems involving totals and change in rand and cents;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.1 building up and breaking down numbers;

1.10.2 doubling and halving;

1.10.3 using concrete apparatus (e.g. counters);

1.10.4 number-lines;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.8: We know this when the learner understands direction.

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.1: We know this when the learner collects data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posed by the teacher (e.g. ‘how many learners are there in each classroom?’);

Assessment Standard 5.4: We know this when the learner draws pictures and constructs pictographs that have a 1-1 correspondence between own data and representations;

Assessment Standard 5.5: We know this when the learner describes own or a peer’s collection of objects, explains how it was sorted, and answers questions about it.

2.7 Partners⁷

2.7.1 MATHEMATICS

2.7.2 Mathematics in the world around us

2.7.3 EDUCATOR SECTION

2.7.4 Memorandum

2.7.5 Critical and developmental outcomes:

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2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;

⁷This content is available online at <<http://cnx.org/content/m32466/1.1/>>.

7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
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2.7.6 LEARNER SECTION

2.7.7 Content

2.7.7.1 ACTIVITY: Partners [LO 1.4, LO 1.8, LO 1.9]

- Write the partners of 10 as quickly as you can.

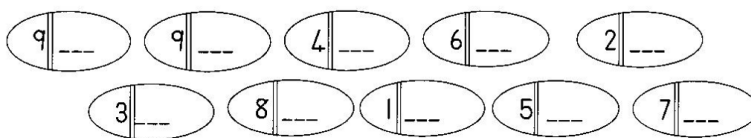


Figure 2.43

- If you know them really well, you can write the partners of 11 quickly because 11 is just one more than 10.
- Try them: partners of 11.

- Write the partners of 13. (Number sentences).

0 + 13 = 13	7.....
1 + ..... = .....	.....
2.....	.....
3.....	.....
4.....	.....
5.....	.....
6.....	.....

Figure 2.47

- Arrange these numbers from the most to the least.

3 1 24 11 18 26

LO 1.4		LO 1.9	
--------	--	--------	--

Table 2.45

- Let the nomogram on page 15 help you to write the subtraction sums of 13.

Remember: $10 + 3 = 13$ so $3 + 10 = 13$

So $13 - 3 = 10$ and $13 - 10 = 3$

$13 - 1 =$ _____
 $13 - 2 =$ _____
 $13 - 2 =$ _____
 $13 - 3 =$ _____
 $13 - 4 =$ _____
 $13 - 5 =$ _____
 $13 - 12 =$ _____
 $13 - 11 =$ _____
 $13 - 10 =$ _____
 $13 - 9 =$ _____
 $13 - 8 =$ _____
 $13 - 7 =$ _____

- This nomogram is the same, except that the numbers are arranged in two groups. It will help you with partners of 14.

0 | 14	1 | 13	2 | 12	3 | 11	4 | 10	5 | 9	6 | 8	
7 | 7	8 | 6	9 | 5	10 | 4	11 | 3	12 | 2	13 | 1	14 | 0

Figure 2.48

LO 1.9	
--------	--

Table 2.46

- Complete the number sentences. Let the nomogram help you.

3 + _____ = 14
8 + _____ = 14
10 + _____ = 14
2 + _____ = 14
4 + _____ = 14
5 + _____ = 14
11 + _____ = 14
9 + _____ = 14
14 - 3 =
14 - 8 =
14 - 10 =
14 - 2 =
14 - 4 =
14 - 5 =
14 - 11 =
14 - 9 =

- Now try adding 5 more.

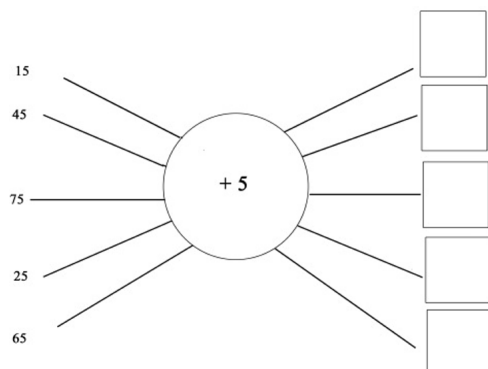


Figure 2.49

LO 1.8	LO 1.9	
--------	--------	--

Table 2.47

- Complete:

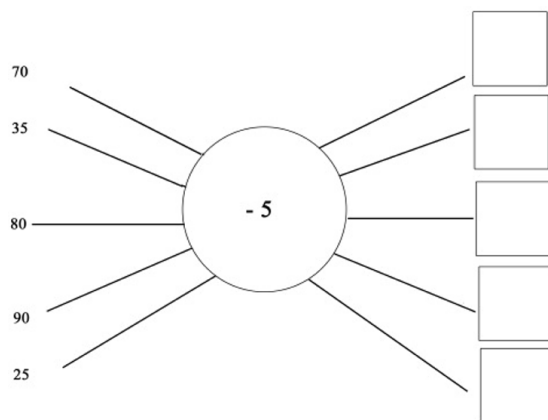


Figure 2.50

-
- Discover the partners of 15 in the wheel.
 - Check your friend's wheel.

- Write the number sentences.

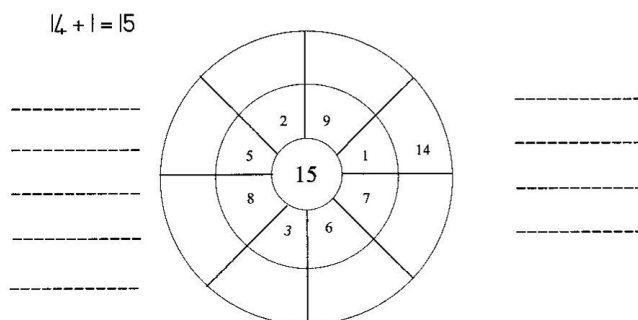


Figure 2.51

LO 1.8	LO 1.9	
--------	--------	--

Table 2.48

2.7.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.4: We know this when the learner orders, describes and compares numbers;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations.

2.8 Measure activities⁸

2.8.1 MATHEMATICS

2.8.2 Mathematics in the world around us

2.8.3 EDUCATOR SECTION

2.8.4 Memorandum

2.8.5 Critical and developmental outcomes:

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⁸This content is available online at <http://cnx.org/content/m32467/1.1/>.

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2.8.6 LEARNER SECTION

2.8.7 Content

2.8.7.1 ACTIVITY: Measure activities [LO 1.2, LO 1.4, LO 1.7, LO 1.8 LO 1.10, LO 1.11, LO 2.2, LO 4.6, LO 4.7]

- What does the balance tell you about the mass of my toys?

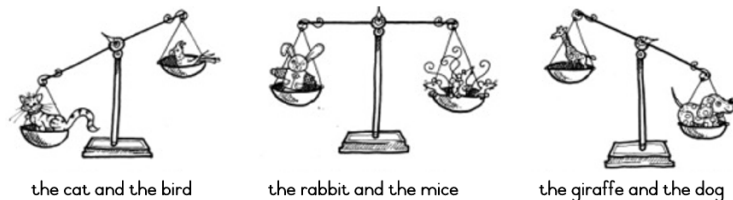


Figure 2.52

- Discuss their mass with a friend.
- Complete the list to say which of the toys have a _____

2.8.7.1.1 Great mass

2.8.7.1.2 Small mass

2.8.7.1.3 Same mass

- Complete:

The mass of the cat is the same as _____ stones
The mass of the rabbit is the same as _____ stones

LO 4.6	
--------	--

Table 2.49

- Compare the mass of your pencil case and your friend's pencil case. Use the balance.
- Tell each other what conclusions you come to.
- Choose stones or blocks or shells and see how many have the same mass as your pencil case.
- Complete:

My pencil case has the same mass as _____
(stones, blocks, shells)

- Now find out about these on the balance and complete the sentences.

1. How many shells have the same mass as my pencil?

Write: My pencil has _____

2. How many blocks have the same mass as my lunch box?

Write: My lunch box has _____

LO 4.6	
--------	--

Table 2.50

- Henry, Mike and Tom jog every morning to keep fit.
- Complete the kilometres on the track.
- Begin at 93.

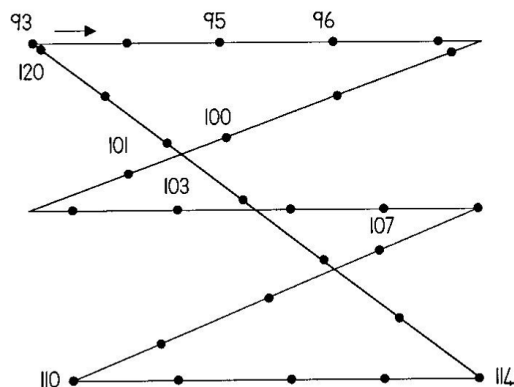


Figure 2.53

- On Monday they started at 120 and stopped at 93. Count backwards.
- Fill in the missing numbers:

100 102, 99 101, 103 105,

96 98, 111 113, 110 112.

- Henry started at 93 and rested 10 km later. He was at _____ km.
- Mike rested 6 km further. He was at _____ km.
- Tom rested between 110 and 112 km. He was at _____ km.

LO 1.2		LO 1.4		LO 2.2	
--------	--	--------	--	--------	--

Table 2.51

- Pat took a large handful of beans. So did Sally.
- Guess how many each had. Pat _____ Sally _____

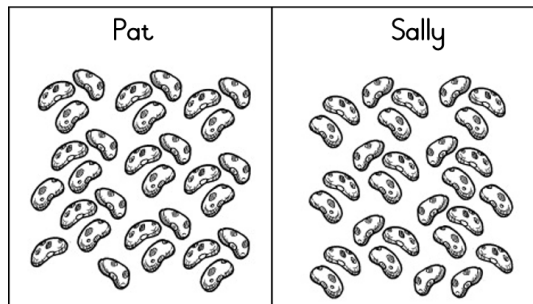


Figure 2.54

Group them into 10's.

- Count Pat's beans. _____ beans.
- Count Sally's beans. _____ beans.
- Did you guess too many, too few or just right?

I _____

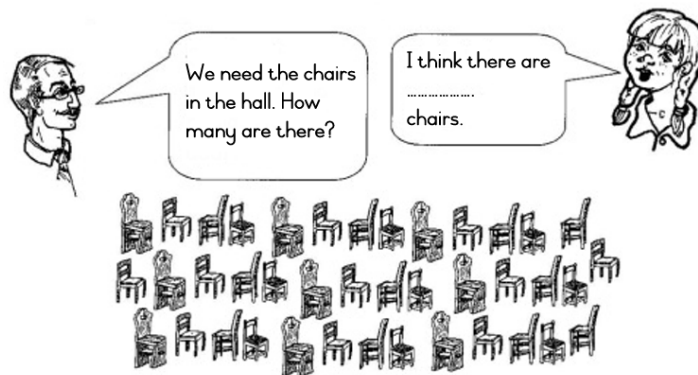


Figure 2.55

- Group them into 10's.
- Count them. There are _____ chairs.

LO 1.1	LO 1.8	
--------	--------	--

Table 2.52

- Arrange the chairs in the hall into groups of 10 and ones.


	30	thirty
h	60	.....
h	48	.....
	54	.....
	39	.....

Figure 2.56

LO 1.10

Table 2.53

1 24 children came to practise. Mr King wanted 8 children in a team.

How many teams did he make? Use counters or draw.

Mr King made teams.

2. Mom has R30,00 in her purse. She divides it equally among Des, Liz and Mo. How much will each get?

Tell a friend how you found out what each one will get

3. Tom, Sisulu and Henry each lost 3 buttons when they were playing “Catch”. How many buttons did they lose altogether?

Write a number sentence.

LO 1.7

LO 1.10

LO 1.11

Table 2.54

- Look through a catalogue, a magazine or a newspaper and find things that are sold by the gram or kilogram. Cut them out and paste them here. Check the prices of each and discuss them with a friend.

LO 4.7	
--------	--

Table 2.55**2.8.7.1.4 Mom makes Muffins for Mo.**

Perhaps you and you teacher would also like to make muffins for tea.

- Try this recipe. (12 muffins)
- **You need :**

500g cake flour
 2,5g salt
 1 egg
 50g margarine
 20g baking powder
 25g suger
 225ml milk

- **You also need :**

a mixing bowl
 a spoon
 muffin tins which are greased

- Method:
1. Beat the egg and mix it with the milk.
 2. Sift all the dry ingredients together.
 3. Add the egg mixture and mix.
 4. Melt the margarine and add to the mixture.
 5. Measure off spoonfuls of mixture into the greased muffin tin.
 6. Bake in an oven with temperature at 200°C for 15 to 20 minutes.
- Serve with margarine. Enjoy!!
- Compare this recipe with the one Mom uses.

LO 4.7	
--------	--

Table 2.56**2.8.8 Assessment**

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards

Assessment Standard 1.4: We know this when the learner orders, describes and compares numbers:

Assessment Standard 1.7: We know this when the learner solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary fractions (e.g. $\frac{1}{4}$);

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.1 building up and breaking down numbers;

1.10.2 doubling and halving;

1.10.3 using concrete apparatus (e.g. counters);

1.10.4 number-lines;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.6: We know this when the learner estimates, measures, compares and orders three-dimensional objects using non-standard measures;

Assessment Standard 4.7: We know this when the learner gains experience with standard measures.

2.9 Patterns⁹

2.9.1 MATHEMATICS

2.9.2 Mathematics in the world around us

2.9.3 EDUCATOR SECTION

2.9.4 Memorandum

2.9.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

• **Integration of Themes:** Autumn

• **A healthy environment:** The signs of Autum.

• This module begins with a graph of birthdays of their friends.

• Number concept and counting activities, stressing the patterns in counting, are extended to 120.

• Halving and doubling within the range 1 to 50.

⁹This content is available online at <<http://cnx.org/content/m32469/1.1/>>.

- Shopping activities include word sums, directions to shops, and selecting the correct coins are included.
- Learners complete a shopping graph.
- Bonds of 10, 11, 12, 13, 14 and 15 are introduced and consolidated with a variety of activities.
- Measuring activities reinforce the vocabulary of “a small mass”, “a great mass”, gram and kilogram.
- A recipe for muffins is included and learners experience practically the value of measurement (Technology).
- To extend their sensitivity to different cultures they create their own patterns using shapes and patterns found on huts.
- Learners learn through playing games and therefore a memory game with number sentences has been designed for them.

2.9.6 LEARNER SECTION

2.9.7 Content

2.9.7.1 ACTIVITY: Patterns [LO 1.8, LO 1.9, LO 1.4, LO 2.1, LO 2.3, LO 2.5, LO 4.6]

- African People in other parts of South Africa often decorate their homes with beautiful patterns of different colours and shapes.
- Colour the patterns.

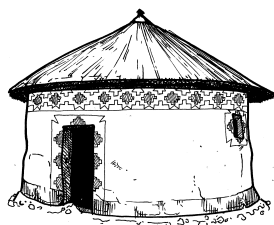


Figure 2.57

- Design your own African pattern for the border around your family photo.
- Draw your family from the shortest to the tallest.
- Show the class your beautiful, colourful picture.

LO 2.1		LO 2.3		LO 2.5		LO 4.6	
--------	--	--------	--	--------	--	--------	--

Table 2.57

- Paste this page on cardboard.
- Cut out the squares.
- Place them face down.
- Take turns to turn one card over.
- Read the number sentence.

- Turn the card face down again.
- Your partner takes a turn and tries to find a card with the
- same answer.
- Keep the partners and see who can collect the most pairs.

$15 - 14$	$7 - 6$	$10 - 8$	$22 - 20$	$9 - 6$	$13 - 10$
$11 - 7$	$12 - 8$	$13 - 8$	$25 - 20$	$15 - 9$	$12 - 6$
$17 + 4$	$24 - 3$	$30 - 10$	$17 + 3$	$9 - 9$	$20 - 2$
$10 - 3$	$14 - 7$	$10 + 6$	$8 + 8$	$36 - 3$	$30 + 3$
$46 + 4$	$53 - 3$	$95 - 5$	$80 + 10$	$20 + 4$	$28 - 4$

Table 2.58

LO 1.8		LO 1.9	
--------	--	--------	--

Table 2.59

2.9.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.1: We know this when the learner copies and extends simple patterns using physical objects and drawings;

Assessment Standard 2.3: We know this when the learner creates own patterns;

Assessment Standard 2.5: We know this when the learner identifies, describes and copies geometric patterns in natural and cultural artefacts of different cultures and times.

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.6: We know this when the learner estimates, measures, compares and orders three-dimensional objects using non-standard measures.

Chapter 3

Term 3

3.1 Vehicles - distance¹

3.1.1 MATHEMATICS

3.1.2 Mathematics in the world around us

3.1.3 EDUCATOR SECTION

3.1.4 Memorandum

3.1.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
 2. work effectively with others as members of a team, group, organisation and community;
 3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
 6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
 6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
 7. reflect on and explore a variety of strategies to learn more effectively;
 8. participate as responsible citizens in the life of local, national, and global communities;
 9. be culturally and aesthetically sensitive across a range of social contexts;
 10. explore education and career opportunities; and develop entrepreneurial opportunities.
- Integration of Themes:
 - A healthy environment: Many vehicles use our roads and these are a source of pollution. Discuss. Safety on the roads is essential. Learners must obey road rules and safety measures taken by the school and road authorities. Discuss how learners can be safe while walking / travelling to and from school.
 - Plants and flowers make our environment pretty and attractive. Learners must know these should be protected and not destroyed.
 - Inclusively: Man, animals and plants all rely on one another to survive. Discuss this statement and give examples.

¹This content is available online at <<http://cnx.org/content/m32470/1.1/>>.

- Vehicles are essentially part of the learner's experience and through these activities of counting to 150, a graph determining distances and vehicles, and the extension of bonds of 16, are used.
- Up to 50 objects are estimated, grouped and counted.
- The multiplication tables of 2 is introduced and addition and subtraction of 6, 7, 8 and 9 included.
- Shapes are identified and sorted by colouring

3.1.6 LEARNER SECTION

3.1.7 Content

3.1.7.1 ACTIVITY: Vehicles - distance [LO 1.2.1, LO 1.2.2, LO 1.2.4, LO 1.3, LO 1.4.1, LO 1.8.1, LO 1.8.3, LO 1.9.1, LO 2.2, LO 5.5]

- Continue the counting pattern for each vehicle in kilometres.

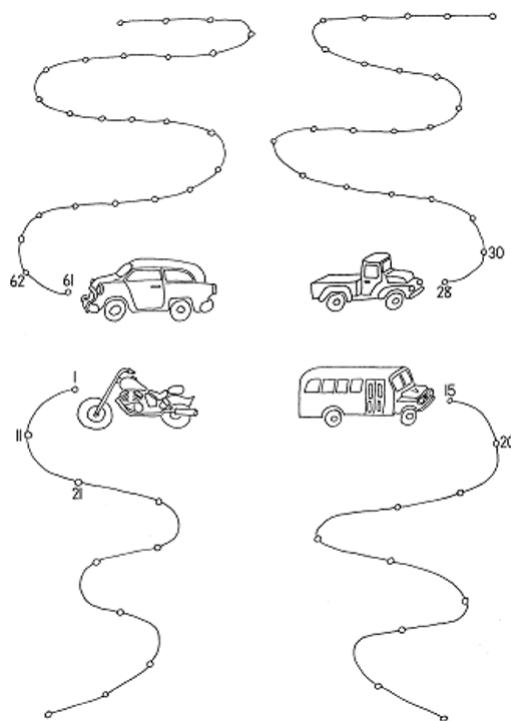


Figure 3.1

- The car travelled _____ km.
- The truck travelled _____ km.
- The motorbike travelled _____ km.
- The bus travelled _____ km.

Table 3.1

- Look at the graph of the number of kilometres that each vehicle travelled on each day.





	Monday	Tuesday	Wednesday	Thursday
 the truck	61	49	79	83
 the car	101	58	46	80
 the motorbike	18	37	40	26
 the bus	43	88	57	39

Figure 3.2

Answer the questions:

- Which one travelled the furthest on Monday? _____
- Which one travelled the furthest on Tuesday? _____
- Which one travelled the furthest on Wednesday? _____
- Which one travelled the furthest on Thursday? _____

LO 5.5	
--------	--

Table 3.2

- Look at the graph and answer the questions.
- Which vehicle travelled the least number of kilometres on Monday?
- Which vehicle travelled the least number of kilometres on Tuesday?
- Which vehicle travelled the least number of kilometres on Wednesday?
- Which vehicle travelled the least number of kilometres on Thursday?
- Arrange each vehicle's kilometres for each day from the least to the most.

The truck: 49 _____

The car: _____

The motorbike: _____

The bus: _____

LO 1.4.1		LO 5.5	
----------	--	--------	--

Table 3.3

- Estimate (guess) how many tyres are lying in the yard.

I think there are _____ tyres.

- Count them.

I counted _____ tyres.

- I estimated too many or too few?

I estimated _____

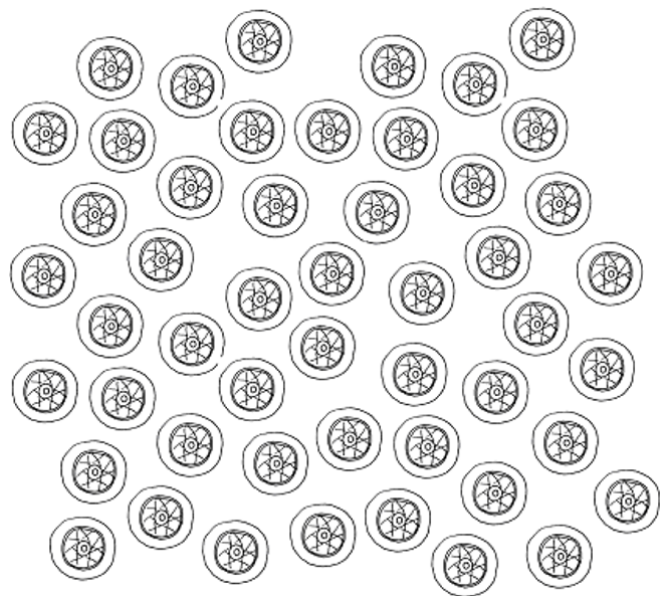


Figure 3.3

- Count the tyres in 1's.
- Count the tyres in 2's.
- Count the tyres in 10's. Group them first.

LO 1.2.1		LO 1.2.2		LO 1.2.4		LO 1.8.3	
----------	--	----------	--	----------	--	----------	--

Table 3.4

- Complete the columns.

72	seventy two	<div><div>oooo oooo oo</div><div>oooo oooo oo</div><div>oooo oooo oo</div><div>oooo oooo oo</div><div>oooo oooo oo</div><div>oooo oooo oo</div><div>oooo oooo oo</div><div>o o</div></div>
64		
88		
50		
69		

Figure 3.4

- Arrange the numbers above from the least to the most.

- Arrange the numbers above from the most to the least.

LO 1.3		LO 1.4.1	
--------	--	----------	--

Table 3.5

- Complete.

The truck travels 5 km further -----

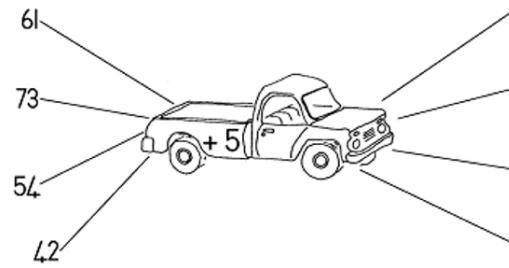


Figure 3.5

- The car travels 10 km further -----

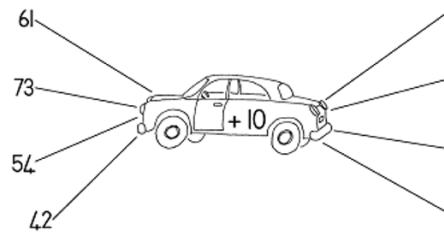


Figure 3.6

- The bus travels ----- further and ----- further.

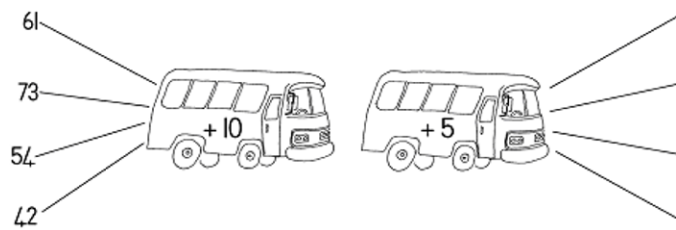


Figure 3.7

Table 3.6

- A game to play with a friend.
- Take turns to pick up 1 or 2 or 3 counters.
- Let your partner guess how many you have picked up.
- If he guesses correctly, you may make so many moves.
- If he guesses wrongly, you may move 4 spaces.
- Follow the arrows; move up, move down.
- Answer the sum on the square where you land.
- A correct answer – stay here. A wrong answer – move one square back.
- The winner is the one to complete the track first.

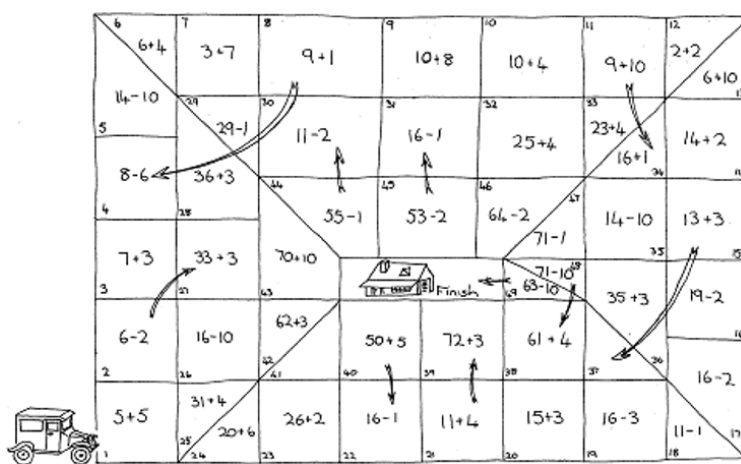


Figure 3.8

LO 1.9.1

Table 3.7

3.1.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- 1.2.1 ones from any number between 0 and 200;
- 1.2.2 tens from any multiple of 10 between 0 and 200;
- 1.2.4 twos from any multiple of 2 between 0 and 200;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

1.4.1 whole numbers to at least 2-digit numbers;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems involving;

1.8.1 addition and subtraction of whole numbers with at least 2 digits;

1.8.3 estimation;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving;

1.9.1 addition and subtraction for numbers to at least 20;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.5: We know this when the learner describes own or a peer's collection of objects, explains how it was sorted, and answers questions about it.

3.2 Doubling²

3.2.1 MATHEMATICS

3.2.2 Mathematics in the world around us

3.2.3 EDUCATOR SECTION

3.2.4 Memorandum

3.2.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- Integration of Themes:
- A healthy environment: Many vehicles use our roads and these are a source of pollution. Discuss. Safety on the roads is essential. Learners must obey road rules and safety measures taken by the school and road authorities. Discuss how learners can be safe while walking / travelling to and from school.
- Plants and flowers make our environment pretty and attractive. Learners must know these should be protected and not destroyed.

²This content is available online at <<http://cnx.org/content/m32508/1.1/>>.

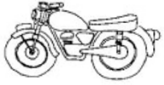
- Inclusively: Man, animals and plants all rely on one another to survive. Discuss this statement and give examples.
- Vehicles are essentially part of the learner's experience and through these activities of counting to 150, a graph determining distances and vehicles, and the extension of bonds of 16, are used.
- Up to 50 objects are estimated, grouped and counted.
- The multiplication tables of 2 is introduced and addition and subtraction of 6, 7, 8 and 9 included.
- Shapes are identified and sorted by colouring


3.2.6 LEARNER SECTION

3.2.7 Content


3.2.7.1 ACTIVITY: Doubling [LO 1.9.2, LO 1.10.2]

- Complete:


2 wheels on 1 motorbike. 

 $2 + 0 = 2$ $2 \times 1 = 2$ (Say: Two taken one time)


4 wheels on 2 motorbikes.

 $2 + 2 = 4$ $2 \times 2 = 4$ (Say: Two taken twice)

..... wheels on 3 motorbikes.

 $2 + 2 + 2 = 6$ $2 \times 3 = 6$ (Say: Two taken three times)

..... wheels on 4 motorbikes.

 $2 + 2 + 2 + 2 = \dots$ $2 \times 4 = \dots$ (Say: Two taken four times)

..... wheels on 5 motorbikes.


 $2 + 2 + 2 + 2 + 2 = \dots$ $2 \times 5 = \dots$ (Say: Two taken five times)

Figure 3.9

- Complete:

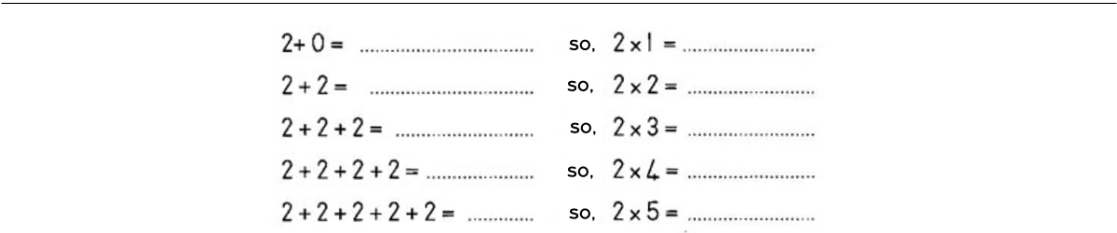


Figure 3.10

LO 1.9.2	
----------	--

Table 3.8

- Complete:

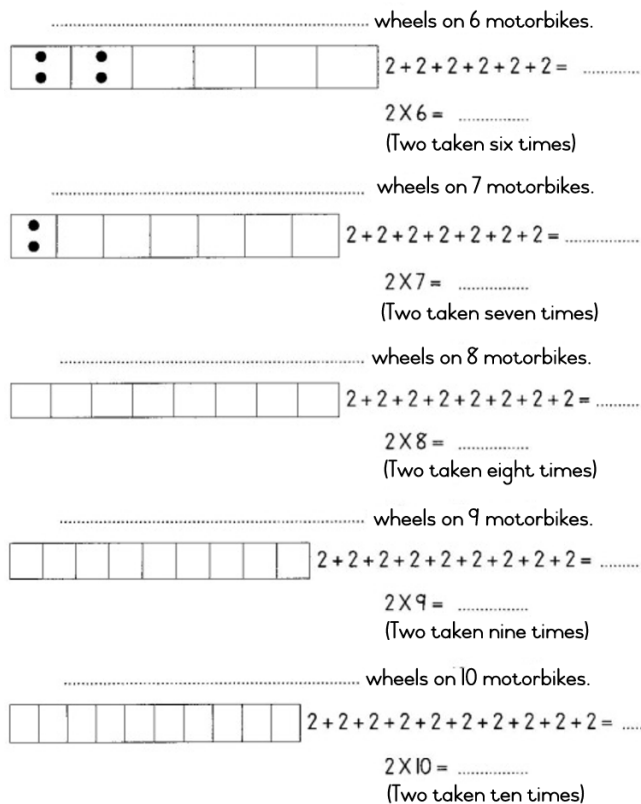


Figure 3.11

LO 1.9.2	
----------	--

Table 3.9

- Complete:

$2+2+2+2+2+2 = \dots\dots\dots$	$\text{so, } 2 \times 6 = \dots\dots\dots$
$2+2+2+2+2+2+2 = \dots\dots\dots$	$\text{so, } 2 \times 7 = \dots\dots\dots$
$2+2+2+2+2+2+2+2 = \dots\dots\dots$	$\text{so, } 2 \times 8 = \dots\dots\dots$
$2+2+2+2+2+2+2+2+2 = \dots\dots\dots$	$\text{so, } 2 \times 9 = \dots\dots\dots$
$2+2+2+2+2+2+2+2+2+2 = \dots\dots\dots$	$\text{so, } 2 \times 10 = \dots\dots\dots$

Figure 3.12

- Match the correct riders to the correct motorbikes.

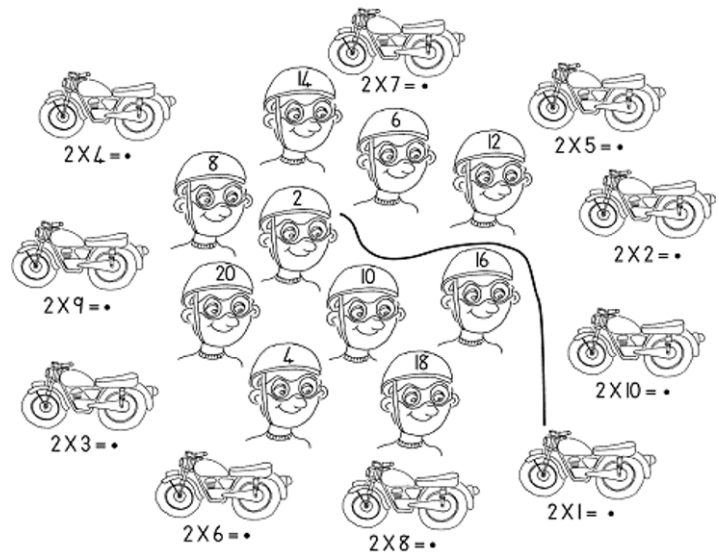


Figure 3.13

LO 1.9.2	
----------	--

Table 3.10

- Look and learn.

One taken twice is the same as one doubled.

	$1 \times 2 = 2$	$(1 + 1 = 2)$
--	------------------	---------------

Two taken twice is the same as two doubled.

	$2 \times 2 = 4$	$(2 + 2 = 4)$
--	------------------	---------------

Figure 3.14

- So

$3 + 3 =$	and	$3 \times 2 =$
$4 + 4 =$	and	$4 \times 2 =$
$5 + 5 =$	and	$5 \times 2 =$
$6 + 6 =$	and	$6 \times 2 =$
$7 + 7 =$	and	$7 \times 2 =$
$8 + 8 =$	and	$8 \times 2 =$
$9 + 9 =$	and	$9 \times 2 =$
$10 + 10 =$	and	$10 \times 2 =$

Figure 3.15

- Double:

4: 6: 8: 10: 9:

Figure 3.16

LO 1.9.2		LO 1.10.2	
----------	--	-----------	--

Table 3.11

- Look and learn.



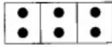

	$2 \times 1 = 2$	can also be written as
	$1 \times 2 = 2$	(One taken twice)
	$2 \times 3 = 6$	can also be written as
	$3 \times 2 = 6$	(Three taken twice)

Figure 3.17

- Draw:

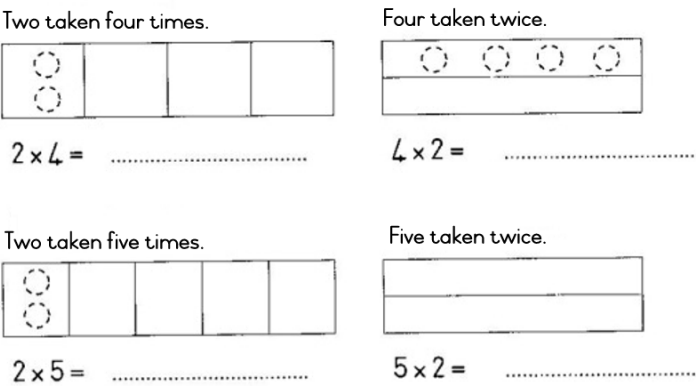


Figure 3.18

- So

$2 \times 6 =$ $6 \times 2 =$

$2 \times 7 =$ $7 \times 2 =$

$2 \times 8 =$ $8 \times 2 =$

$2 \times 9 =$ $9 \times 2 =$

Figure 3.19

LO 1.9.2	
----------	--

Table 3.12

3.2.8 Assesment

Learning Outcome 1:The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.2 doubling and halving.

3.3 All about 16³

3.3.1 MATHEMATICS

3.3.2 Mathematics in the world around us

3.3.3 EDUCATOR SECTION

3.3.4 Memorandum

3.3.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
 2. work effectively with others as members of a team, group, organisation and community;
 3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
 6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
 6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
 7. reflect on and explore a variety of strategies to learn more effectively;
 8. participate as responsible citizens in the life of local, national, and global communities;
 9. be culturally and aesthetically sensitive across a range of social contexts;
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 - Plants and flowers make our environment pretty and attractive. Learners must know these should be protected and not destroyed.
 - Inclusively: Man, animals and plants all rely on one another to survive. Discuss this statement and give examples.
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 - Up to 50 objects are estimated, grouped and counted.
 - The multiplication tables of 2 is introduced and addition and subtraction of 6, 7, 8 and 9 included.
 - Shapes are identified and sorted by colouring

3.3.6 LEARNER SECTION


3.3.7 Content

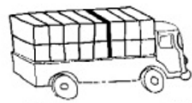
3.3.7.1 ACTIVITY: All about sixteen [LO 1.4.1, LO 1.9.1, LO 2.2]


- Each truck can carry sixteen boxes.


³This content is available online at <<http://cnx.org/content/m32503/1.1/>>.


- Complete the number facts of sixteen.



$$\begin{aligned} 16 + 0 &= \dots\dots\dots \\ 0 + 16 &= \dots\dots\dots \end{aligned}$$



$$\begin{aligned} 10 + \dots\dots\dots &= 16 \\ 6 + \dots\dots\dots &= 16 \end{aligned}$$



$$\begin{aligned} 12 + \dots\dots\dots &= 16 \\ 4 + \dots\dots\dots &= 16 \end{aligned}$$



$$\begin{aligned} 14 + \dots\dots\dots &= 16 \\ 2 + \dots\dots\dots &= 16 \end{aligned}$$


$$\begin{aligned} 15 + \dots\dots\dots &= 16 \\ 1 + \dots\dots\dots &= 16 \end{aligned}$$


$$\begin{aligned} 11 + \dots\dots\dots &= 16 \\ 5 + \dots\dots\dots &= 16 \end{aligned}$$


$$\begin{aligned} 9 + \dots\dots\dots &= 16 \\ 7 + \dots\dots\dots &= 16 \end{aligned}$$


$$8 + \dots\dots\dots = 16$$


$$\begin{aligned} 13 + \dots\dots\dots &= 16 \\ 3 + \dots\dots\dots &= 16 \end{aligned}$$

☺ Complete:

sixteen 16

x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x

$$\begin{aligned} 16 - 1 &= \dots\dots\dots & 16 - 15 &= \dots\dots\dots \\ 16 - 2 &= \dots\dots\dots & 16 - 14 &= \dots\dots\dots \\ 16 - 3 &= \dots\dots\dots & 16 - 13 &= \dots\dots\dots \\ 16 - 4 &= \dots\dots\dots & 16 - 12 &= \dots\dots\dots \end{aligned}$$

Figure 3.20

LO 1.9.1	
----------	--

Table 3.13

- Colour in the parts and flags that have an answer of 16.

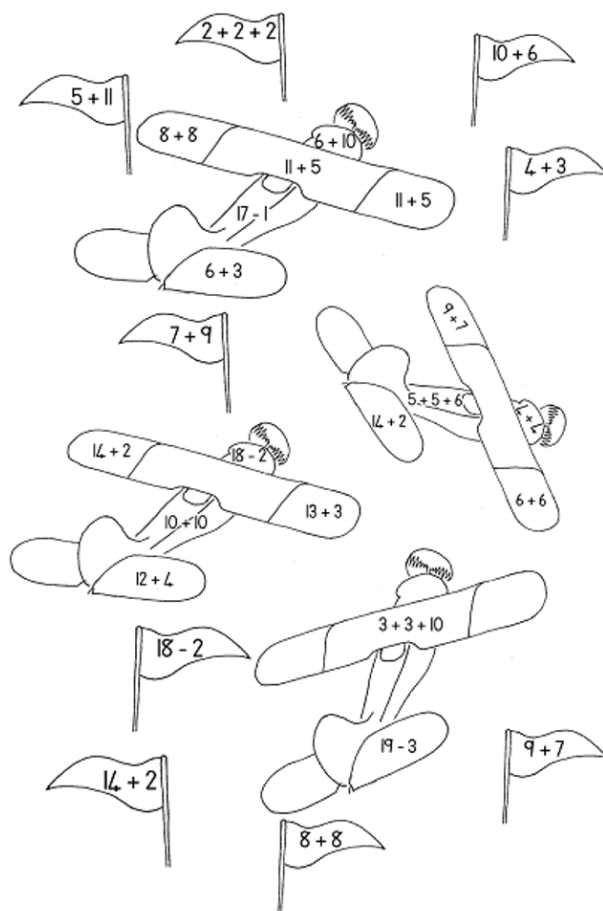


Figure 3.21

LO 1.9.1	
----------	--

Table 3.14

- Write each number sentence in different ways like this

$15 + 1 = 16$	$1 + 15 = 16$	$16 - 1 = 15$	$16 - 15 = 1$
$14 + 2 = \dots\dots\dots$	$2 \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$13 + 3 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$12 + 4 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$11 + 5 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$10 + 6 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$9 + 7 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$8 + 8 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$7 + 9 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$6 + 10 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$5 + 11 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$4 + 12 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$
$3 + 13 = \dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$	$\dots\dots\dots$

Figure 3.22

LO 1.9.1	
----------	--

Table 3.15

- Join the dots in the correct order.
- Colour in.

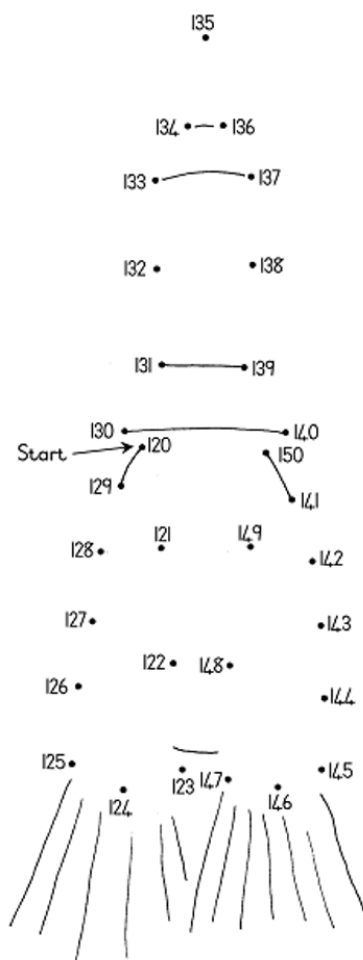


Figure 3.23

LO 1.4.1	
----------	--

Table 3.16

- Complete the number sequences.

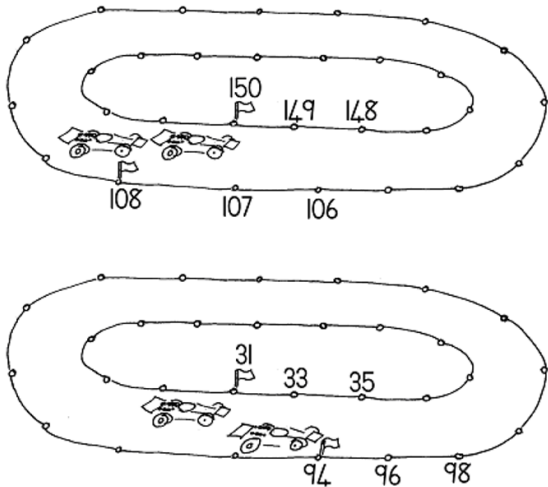


Figure 3.24

- Fill in the missing numbers:

16, 20, , , , , , ,
54, 56, , , , , , ,
96, 93, , , , , , ,
101, 103, , , , , , ,

Figure 3.25

LO 2.2	
--------	--

Table 3.17

3.3.8 Assessment

Learning Outcome 1:The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.4: We know this when the learner orders, describes and compares the following numbers:

1.4.1 whole numbers to at least 2-digit numbers;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

1.9.1 addition and subtraction for numbers to at least 20;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

3.4 All about 10⁴

3.4.1 MATHEMATICS

3.4.2 Mathematics in the world around us

3.4.3 EDUCATOR SECTION

3.4.4 Memorandum

3.4.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- Integration of Themes:
- A healthy environment: Many vehicles use our roads and these are a source of pollution. Discuss. Safety on the roads is essential. Learners must obey road rules and safety measures taken by the school and road authorities. Discuss how learners can be safe while walking / travelling to and from school.
- Plants and flowers make our environment pretty and attractive. Learners must know these should be protected and not destroyed.
- Inclusively: Man, animals and plants all rely on one another to survive. Discuss this statement and give examples.
- Vehicles are essentially part of the learner's experience and through these activities of counting to 150, a graph determining distances and vehicles, and the extension of bonds of 16, are used.
- Up to 50 objects are estimated, grouped and counted.
- The multiplication tables of 2 is introduced and addition and subtraction of 6, 7, 8 and 9 included.
- Shapes are identified and sorted by colouring

⁴This content is available online at <<http://cnx.org/content/m32504/1.1/>>.

3.4.6 LEANER SECTION

3.4.7 Content

3.4.7.1 ACTIVITY: All about ten [LO 1.3, LO 1.8.1, LO 1.9.1]

- Sort the numbers and encircle those that add up to 10.

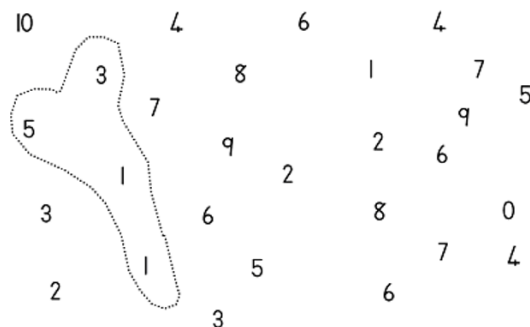


Figure 3.26

- Write the numbers in the circles above as number sentences, e.g.

eg. $5 + 3 + 1 + 1 = 10$

LO 1.9.1	
----------	--

Table 3.18

- Join the numbers to add up to 10.
- Join another number to make 11, e.g. 6 4 1 .
- You may use the numbers more than once.

☺ Do these addition sums. Complete to the nearest multiple of 10 first, e.g.

$$34 + 9$$

$$34 + 6 \rightarrow 40 + 3 \rightarrow 43$$

So, $34 + 9 = 43$.

☺ Now try these.

$16 + 8$

$16 + \dots \rightarrow 20 + \dots \rightarrow \dots$

$16 + 8 = \dots$

$29 + 7$

$29 + \dots$

$29 + 7 = \dots$

$35 + 8$

$35 + \dots$

$35 + 8 = \dots$

$47 + 7$

$47 + \dots$

$47 + 7 = \dots$

Figure 3.28

- Kan jy aan 'n ander manier dink om $47 + 7$ uit te werk? Wys hoe jy dit doen.

LO 1.8.1	
----------	--

Table 3.20

- Read the story sums.
- Work out the answers.

1. Dad travelled 10 km to work on Monday. On Tuesday he went to work again and then travelled 6 more kilometres to the shop. Altogether he travelled:

$$10 + 10 + 6 = \dots$$

2. Dad does not work weekends. How far does he travel to work during the week from Monday to Friday?

$$\dots + \dots + \dots + \dots + \dots = \dots$$

3. During the weekend, Dad travelled 100 km. How much further did he travel during the weekend than during the week? $\dots = \dots$

4. Dad takes 12 minutes to travel to work. The bus takes twice as long. How long does the bus take? $\dots = \dots$

LO 1.8.1	
----------	--

Table 3.21

- Complete the columns.

$30 + 6$	36	thirty six
	28	
$40 + 9$		
	63	
		eighty one
	44	
$70 + 7$		
		twenty three
	89	
$50 + 5$		
	40	
		ninety nine

Table 3.22

LO 1.3		LO 1.8.1	
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Table 3.23

3.4.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems involving;

1.8.1 addition and subtraction of whole numbers with at least 2 digits;

Assessment Standard 1.9: We know this when the learner performs mental calculations involving;

1.9.1 addition and subtraction for numbers to at least 20.

3.5 All about 13⁵

3.5.1 MATHEMATICS

3.5.2 Mathematics in the world around us

3.5.3 EDUCATOR SECTION

3.5.4 Memorandum

3.5.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
 2. work effectively with others as members of a team, group, organisation and community;
 3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
 6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
 6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
 7. reflect on and explore a variety of strategies to learn more effectively;
 8. participate as responsible citizens in the life of local, national, and global communities;
 9. be culturally and aesthetically sensitive across a range of social contexts;
 10. explore education and career opportunities; and develop entrepreneurial opportunities.
- Integration of Themes:
 - A healthy environment: Many vehicles use our roads and these are a source of pollution. Discuss. Safety on the roads is essential. Learners must obey road rules and safety measures taken by the school and road authorities. Discuss how learners can be safe while walking / travelling to and from school.
 - Plants and flowers make our environment pretty and attractive. Learners must know these should be protected and not destroyed.
 - Inclusively: Man, animals and plants all rely on one another to survive. Discuss this statement and give examples.
 - Vehicles are essentially part of the learner's experience and through these activities of counting to 150, a graph determining distances and vehicles, and the extension of bonds of 16, are used.
 - Up to 50 objects are estimated, grouped and counted.
 - The multiplication tables of 2 is introduced and addition and subtraction of 6, 7, 8 and 9 included.
 - Shapes are identified and sorted by colouring

3.5.6 LEARNER SECTION

3.5.7 Content

3.5.7.1 ACTIVITY: All about thirteen [LO 1.9.1, LO 5.4, LO 5.5]

- Draw and colour in enough diamonds in each star to make 13.

⁵This content is available online at <<http://cnx.org/content/m32505/1.1/>>.

- Complete the number sentences.

	$9 + \dots = 13$ $4 + \dots = 13$ $13 - 9 = \dots$ $13 - 4 = \dots$
	$11 + \dots = 13$ $2 + \dots = 13$ $13 - 11 = \dots$ $13 - 2 = \dots$
	$10 + \dots = 13$ $3 + \dots = 13$ $13 - 10 = \dots$ $13 - 3 = \dots$

Figure 3.29

LO 1.9.1	
----------	--

Table 3.24

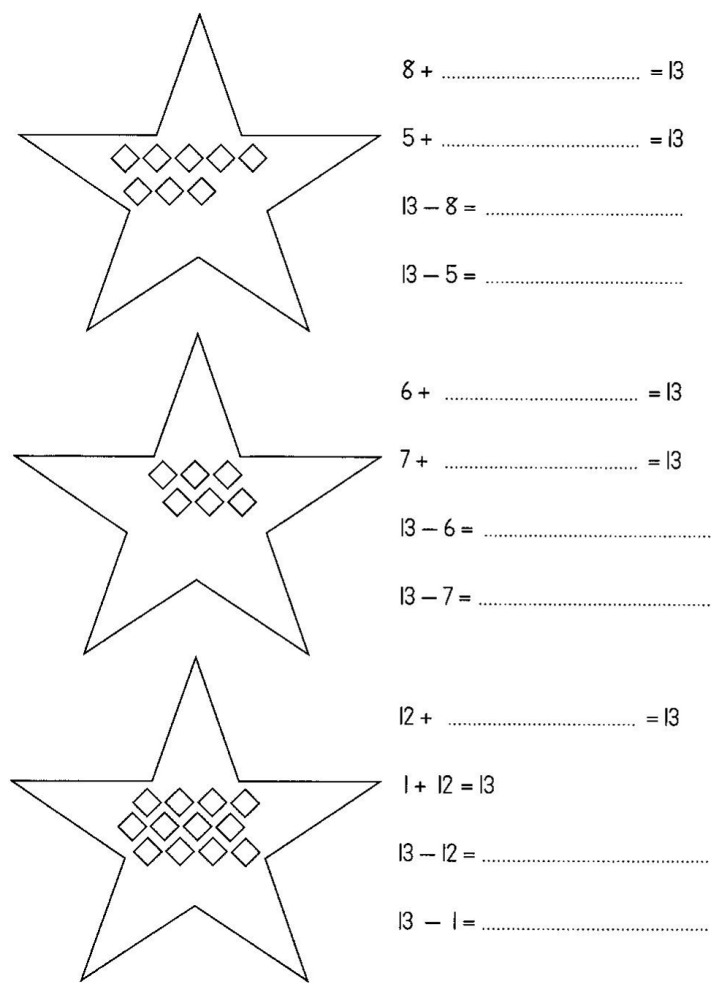


Figure 3.30

LO 1.9.1	
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Table 3.25

- I counted these vehicles at the airport.

cars = 14	motorbikes = 3	buses = 2
lorries = 4	combi's = 5	vans = 7
trucks = 6	taxi's = 8	land rovers = 9

- Complete the graph.

My graph of vehicles at the airport

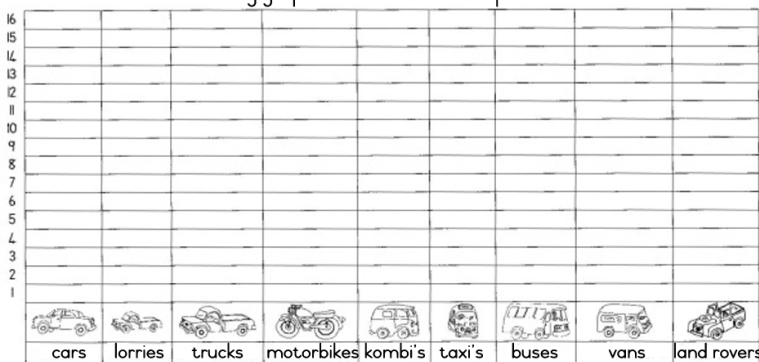


Figure 3.31

LO 5.4

Table 3.26

- Look at your graph
- Answer these questions.

- How many cars were there? _____ cars.
- How many land rovers were there? _____ land rovers.
- Were there more or less cars than land rovers?
There were _____ cars than land rovers.
- The _____ were the least.
- There were _____ more trucks than lorries.
- There were _____ less taxi's than cars.
- There were _____ trucks and lorries altogether.
- There were _____ less buses than vans.
- How many motorbikes, kombi's and taxi's were there altogether? _____

LO 5.5

Table 3.27

3.5.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:
1.9.1 addition and subtraction for numbers to at least 20;

Learning Outcome 5: The learner will be able to collect, summarise, display and critically analyse data in order to draw conclusions and make predictions, and to interpret and determine chance variation.

Assessment Standard 5.4: We know this when the learner draws pictures and constructs pictographs that have a 1-1 correspondence between own data and representations;

Assessment Standard 5.5: We know this when the learner describes own or a peer's collection of objects, explains how it was sorted, and answers questions about it.

3.6 Shapes⁶

3.6.1 MATHEMATICS

3.6.2 Mathematics in the world around us

3.6.3 EDUCATOR SECTION

3.6.4 Memorandum

3.6.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
 2. work effectively with others as members of a team, group, organisation and community;
 3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
 6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
 6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
 7. reflect on and explore a variety of strategies to learn more effectively;
 8. participate as responsible citizens in the life of local, national, and global communities;
 9. be culturally and aesthetically sensitive across a range of social contexts;
 10. explore education and career opportunities; and develop entrepreneurial opportunities.
- Integration of Themes:
 - A healthy environment: Many vehicles use our roads and these are a source of pollution. Discuss. Safety on the roads is essential. Learners must obey road rules and safety measures taken by the school and road authorities. Discuss how learners can be safe while walking / travelling to and from school.
 - Plants and flowers make our environment pretty and attractive. Learners must know these should be protected and not destroyed.
 - Inclusively: Man, animals and plants all rely on one another to survive. Discuss this statement and give examples.
 - Vehicles are essentially part of the learner's experience and through these activities of counting to 150, a graph determining distances and vehicles, and the extension of bonds of 16, are used.
 - Up to 50 objects are estimated, grouped and counted.
 - The multiplication tables of 2 is introduced and addition and subtraction of 6, 7, 8 and 9 included.

⁶This content is available online at <<http://cnx.org/content/m32506/1.1/>>.

- Shapes are identified and sorted by colouring

3.6.6 LEARNER SECTION

3.6.7 Content

3.6.7.1 ACTIVITY: Shapes [LO 1.9.1, LO 1.9.2, LO 1.10.2, LO 3.1, LO 3.5]

- Find the shapes that are the same in each triangle.
- Colour the triangles that are the same, in the same colour.
- Colour the squares that are the same, in the same colour.

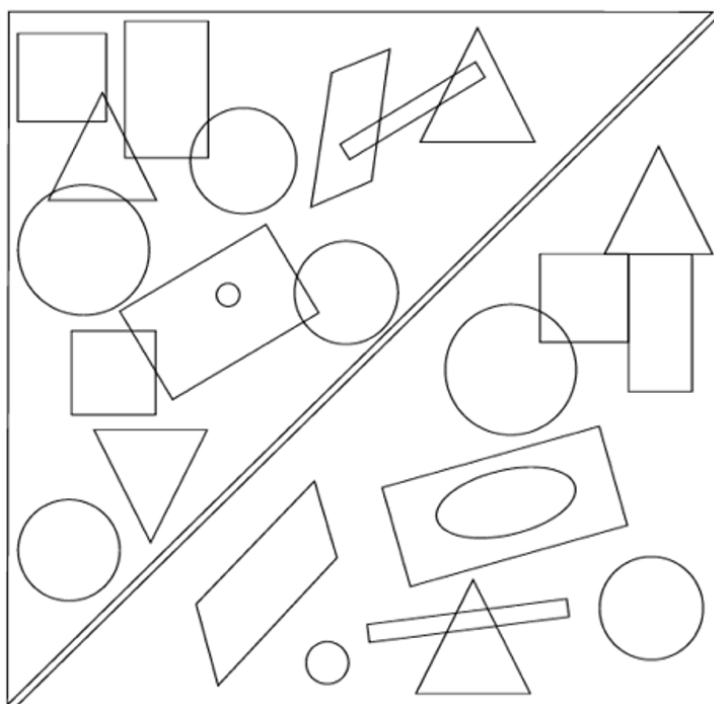


Figure 3.32

LO 3.1	LO 3.5	
--------	--------	--

Table 3.28

- Join each number sentence to a flower that has the right answer.
- Colour the flower.

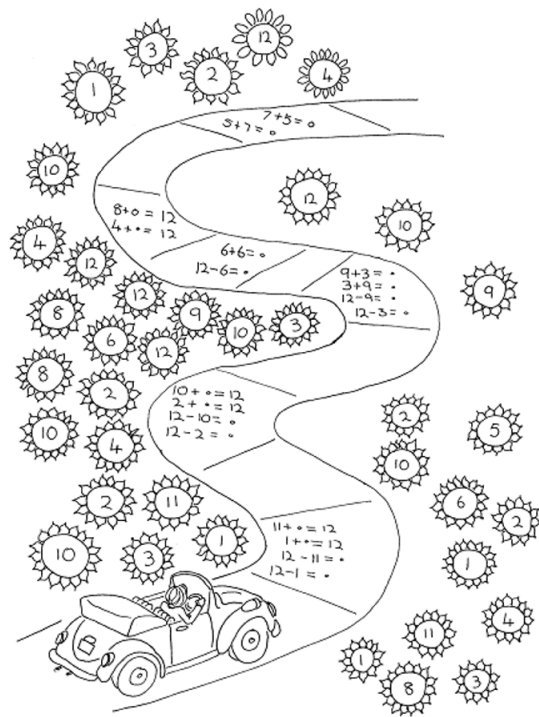


Figure 3.33

LO 1.9.1	
----------	--

Table 3.29

- Count the shapes in each picture.

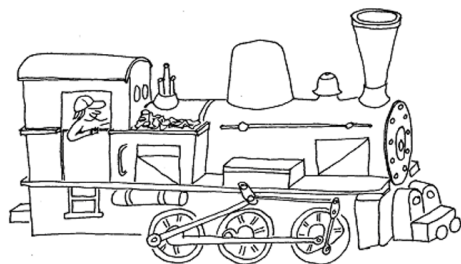


Figure 3.34

circles = _____
 triangles = _____
 squares = _____
 rectangles = _____
 ovals = _____

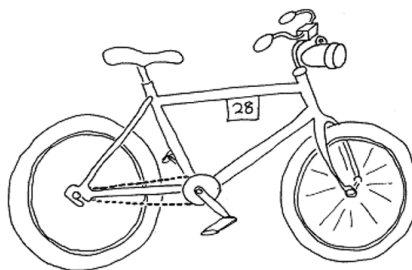


Figure 3.35

circles = _____
 triangles = _____
 squares = _____
 rectangles = _____
 ovals = _____

LO 3.1	
--------	--

Table 3.30

- Use these shapes to draw some animals.
 - Use as many as you need.
 - Give each animal a name.
-



Figure 3.36

LO 3.1		LO 3.5	
--------	--	--------	--

Table 3.31

- Complete.
- The table of two.

X	6	2	4	8	3	9	5
••	12						

☺ Double these numbers.

1	6	2	4	8	3	9	5
2							

☺ Double these numbers.

7	10	30	40	20	11	50	9

☺ Complete.

$6 \times 2 =$

$7 \times 2 =$

$2 \times 5 =$

$9 \times 2 =$

$2 \times 8 =$

$10 \times 2 =$

Figure 3.37

LO 1.9.2	LO 1.10.2
----------	-----------

Table 3.32

3.6.8 Assessment

Learning Outcome 1:The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations involving:

- 1.9.1 addition and subtraction for numbers to at least 20.
- 1.9.2 multiplication of whole numbers with solutions to at least 20.

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.2 doubling and halving;

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures;

Assessment Standard 3.5: We know this when the learner recognises three-dimensional objects from different positions.

3.7 Fractions with squares⁷

3.7.1 MATHEMATICS

3.7.2 Mathematics in the world around us

3.7.3 EDUCATOR SECTION

3.7.4 Memorandum

3.7.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

Integration of Themes:

- **Inclusively and Human rights:** Everyone in a class deserves to be challenged. Special creative work should not be given to the bright learners only. Opportunities to extend, to experiment and to discover should be present to everyone in the class. This will encourage learners to try new methods, to learn from their peers and to take risks. Discuss in small groups whether we should be given work to make us think.
- Practical experience with halves and quarters is given.
- Number concept is extended beyond 200 and counting patterns stressed.
- Learners are carefully guided to understand the rounding off of numbers to the nearest multiple.
- Bonds of 17, 18 and 20 are introduced.
- Number values and place values are taught with diagrams.
- The multiplication tables of 10 and 5 are set out.
- Learners can create their own patterns, and games for consolidating number facts are included.
- Using their imagination they can create animals, using shapes.

⁷This content is available online at <<http://cnx.org/content/m32473/1.1/>>.

3.7.6 LEANER SECTION

3.7.7 Content

3.7.7.1 ACTIVITY: Fractions with squares [LO 1.7, LO 1.10, LO 4.1]

3.7.7.1.1 Fractions with squares

- Take a piece of paper.
- Make sure the sides are the same length.
- This shape is called a square.

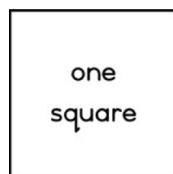


Figure 3.38

- Fold the square in half. Open the square.
- Cut along the fold.
- There are 2 pieces that are the same size.
- One piece is called a half.
- Two halves make 1 whole.



Figure 3.39

- Take another square.
- Fold it in half in a different way, e.g.

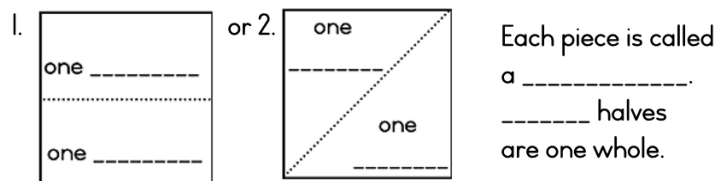


Figure 3.40

LO 1.7	
--------	--

Table 3.33

3.7.7.1.2 Fractions with triangles and rectangles

- Take a piece of paper shaped like a triangle.
- Fold and cut it in half.
- Mark each piece, “one half”.

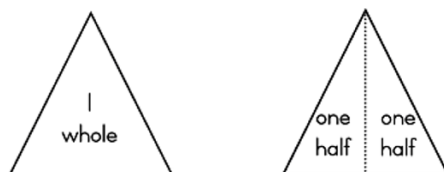


Figure 3.41

-
- Two halves make 1 _____
 - Do the same with a piece of paper shaped like a rectangle.



Figure 3.42

-
- Fold and cut a rectangle in different ways.



Figure 3.43

-
- Two halves make 1 -----
 - Draw circles around the shapes that have 1 half coloured in.



Figure 3.44

LO 1.7	
--------	--

Table 3.34

3.7.7.1.3 Fractions with circles

- Take a piece of paper shaped like a circle.
- Fold and cut it in half.
- Mark each piece; “one half.”

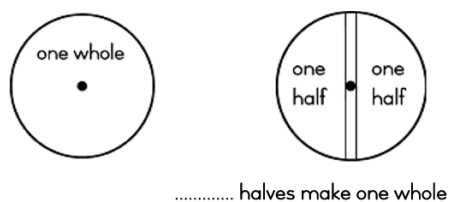


Figure 3.45

-
- Colour the circles that have been cut in half. The halves must be the same size.

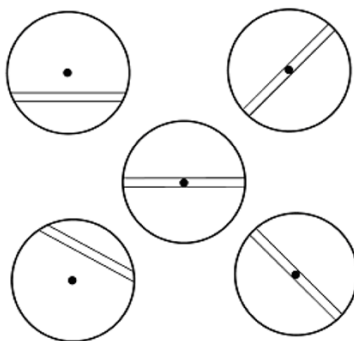


Figure 3.46

LO 1.7	
--------	--

Table 3.35

- Complete these number lines.

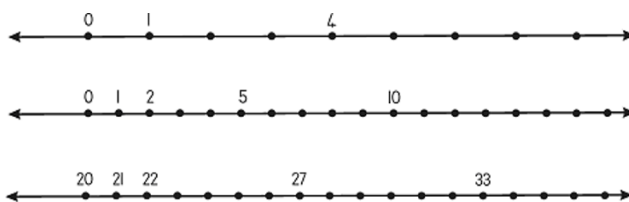


Figure 3.47

- Mark halfway between 0 and 10 with an X.

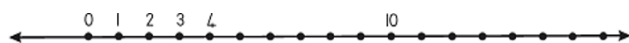


Figure 3.48

- Mark halfway between 10 and 20 with an X.



Figure 3.49

- Mark halfway between 20 and 30 with an X.



Figure 3.50

LO 1.10

Table 3.36

3.7.7.1.4 Rounding off numbers

- Look!

The truck has travelled past the halfway mark X as far as 8.

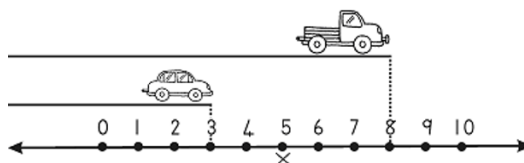


Figure 3.51

- The car has not yet reached the halfway mark X at 5.
- To round off the distance that the truck travelled to the nearest multiple of 10, we can say 8 can be rounded off to 10.

It is nearer to 10 than to 0.

In the same way numbers 5, 6, 7 and 9 can be rounded off to the nearest multiple of 10, which is 10.

But numbers 4, 3, 2, 1 cannot be rounded off to 10 because they are less than halfway to the next multiple of 10.

They are nearer to 0 than to 10.

- To round off these numbers;

14 becomes 10

16 becomes 20

18 becomes _____

11 becomes _____

12 becomes _____

15 becomes _____

17 becomes _____

19 becomes _____

7 becomes _____

6 becomes _____

8 becomes _____

9 becomes _____

LO 1.7	
--------	--

Table 3.37

- My alarm clock rang at half past six.
- The long hand was on the six and the short hand halfway between the six and the seven.



half past six



six o'clock

Figure 3.52

The long hand had travelled halfway around the clock, from 12 to 6.

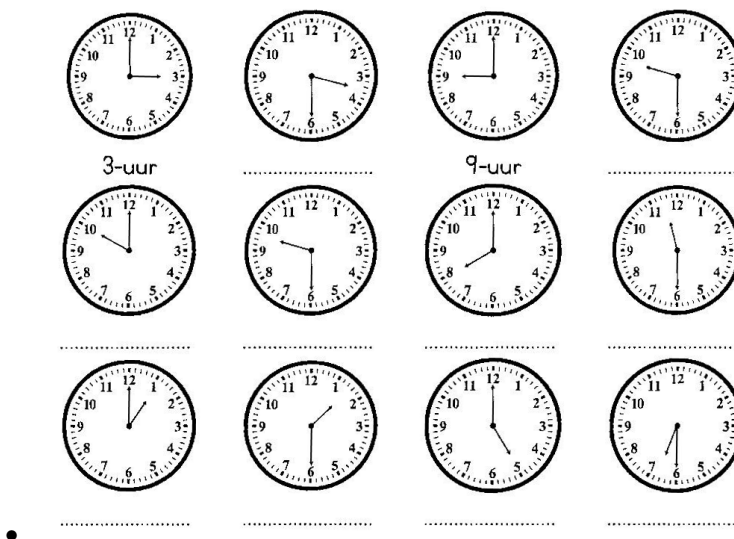


Figure 3.53

Complete the times on these clocks.

LO 4.1	
--------	--

Table 3.38

3.7.7.1.5 Fractions with shapes

- Take a square piece of paper.
- Fold it in half.
- Fold it in half again.

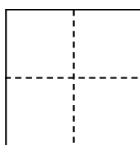


Figure 3.54

- Open the paper and cut along the folds.
- How many pieces are there? _____ pieces.

- Each part is called “one quarter,” which means one of 4 parts.



Figure 3.55

- Colour in one quarter.



Figure 3.56

- How many quarters will be equal to one half?
- Colour in the quarters to show one half.



Figure 3.57

- _____ quarters make one half.
- _____ quarters make one whole.
- Look!
- Shapes that are divided into 4 equal parts have been divided into quarters.
- Colour in one quarter in each of these shapes.

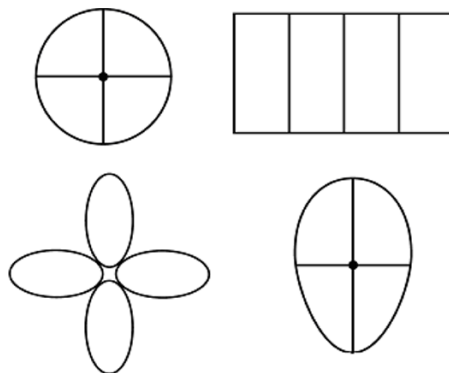


Figure 3.58

- Colour in 2 quarters.

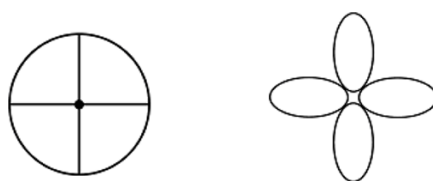


Figure 3.59

- 2 quarters are equal to _____
- 4 quarters are equal to _____

LO 1.7	
--------	--

Table 3.39

3.7.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.7: We know this when the learner solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary fractions (eg. $\frac{1}{4}$);

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;
- 1.10.2 doubling and halving;
- 1.10.3 using concrete apparatus (e.g. counters);

1.10.4 number-lines.

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.1: We know this when the learner reads analogue and digital clock time in hours and minutes.

3.8 All about tens and twenties⁸

3.8.1 MATHEMATICS

3.8.2 Mathematics in the world around us

3.8.3 EDUCATOR SECTION

3.8.4 Memorandum

3.8.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

Integration of Themes:

- **Inclusively and Human rights:** Everyone in a class deserves to be challenged. Special creative work should not be given to the bright learners only. Opportunities to extend, to experiment and to discover should be present to everyone in the class. This will encourage learners to try new methods, to learn from their peers and to take risks. Discuss in small groups whether we should be given work to make us think.
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- Number values and place values are taught with diagrams.
- The multiplication tables of 10 and 5 are set out.
- Learners can create their own patterns, and games for consolidating number facts are included.
- Using their imagination they can create animals, using shapes.

⁸This content is available online at <<http://cnx.org/content/m32475/1.1/>>.

3.8.6 LEANER SECTION

3.8.7 Content

3.8.7.1 ACTIVITY: All about tens and twenties [LO 1.9]

3.8.7.1.1 Make tens

- Add vertically.
- Find the answers by first making tens.

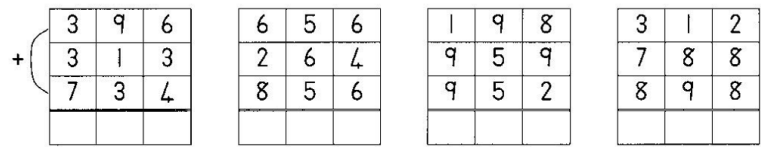


Figure 3.60

-
- Write each number sentence like this _____

$7 + 3 \rightarrow 10 + 3 \rightarrow \bullet$

Figure 3.61

LO 1.9	
--------	--

Table 3.40

3.8.7.1.2 Make twenties

- Add vertically.
- Find the answers by first making twenties.

+	16	15	19
	4	5	4
	4	4	1

6	11	17
2	9	6
18	6	3

14	7	12
3	13	3
6	3	8

Figure 3.62

-
- Write each number sentence like this _____

$$16 + 4 \rightarrow 20 + 4 \rightarrow \bullet$$

Figure 3.63

LO 1.9	
--------	--

Table 3.41

3.8.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations.

3.9 All about 17⁹

3.9.1 MATHEMATICS

3.9.2 Mathematics in the world around us

3.9.3 EDUCATOR SECTION

3.9.4 Memorandum

3.9.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;

⁹This content is available online at <<http://cnx.org/content/m32476/1.1/>>.

3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
 6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
 6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
 7. reflect on and explore a variety of strategies to learn more effectively;
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- The multiplication tables of 10 and 5 are set out.
- Learners can create their own patterns, and games for consolidating number facts are included.
- Using their imagination they can create animals, using shapes.

3.9.6 LEARNER SECTION

3.9.7 Content

ACTIVITY: All about seventeen [LO 1.8, LO 1.9, LO 1.10]

3.9.7.1 All about seventeen

- First make a ten, then add seven, e.g.

$$\begin{array}{c} 10 \\ \overbrace{9 + 1} + 7 = 17 \\ 8 \end{array}$$

$$\text{So } 9 + 8 = 17$$

Figure 3.64

- Do the same with

$$\begin{array}{rclcl}
 & & 10 & & \\
 8 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 8 + \bullet = 17 \\
 7 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 7 + \bullet = 17 \\
 6 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 6 + \bullet = 17 \\
 5 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 5 + \bullet = 17 \\
 4 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 4 + \bullet = 17 \\
 3 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 3 + \bullet = 17 \\
 2 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 2 + \bullet = 17 \\
 1 & + & \bullet & + & 7 = 17 \quad \text{so} \quad 1 + \bullet = 17
 \end{array}$$

Figure 3.65

LO 1.9	
--------	--

Table 3.42

- Complete the number sentences to discover the number facts of 17.
- Let this box help you.

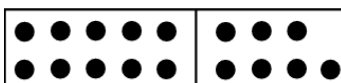


Figure 3.66

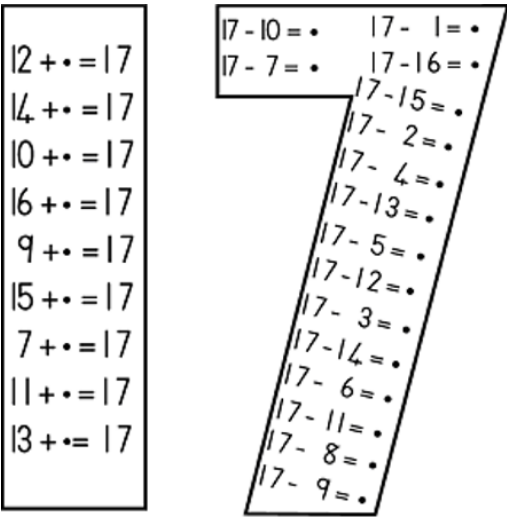


Figure 3.67

- Write the number facts of 17 like this:

$10 + 7 = 17$	$7 + 10 = 17$	$17 - 10 = 7$	$17 - 7 = 10$
$11 + 6 = 17$	.....	.....	.....
$12 + 5 = 17$	.....	.....	.....
$13 + 4 = 17$	.....	.....	.....
$14 + 3 = 17$	.....	.....	.....
$15 + 2 = 17$	.....	.....	.....
$16 + 1 = 17$	.....	.....	.....
$9 + 8 = 17$	.....	.....	.....

Figure 3.68

LO 1.10	
---------	--

Table 3.43

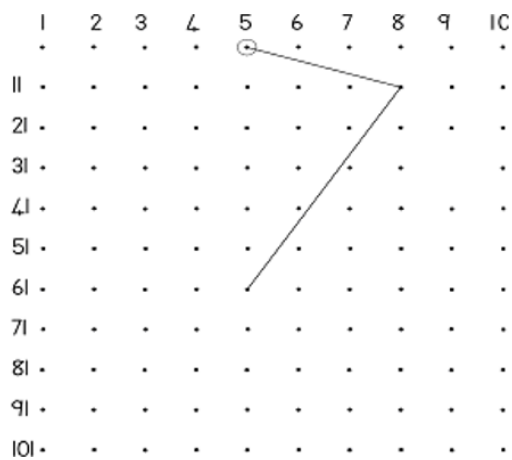


Figure 3.69

-
- Complete the number sentences.
 - Find the answer on the grid. Draw a circle around the answer on the grid.
 - Join the dots that have circles. Begin at 5.

- Colour in the picture.

1. $95 - 90 = 5$
2. $20 - 5 =$
3. $30 - 5 =$
4. $40 - 5 =$
5. $50 - 5 =$
6. $60 - 5 =$
7. $66 - 2 =$
8. $66 - 3 =$
9. $64 - 2 =$
10. $86 - 3 =$
11. $80 + 4 =$
12. $81 + 4 =$
13. $76 + 10 =$
14. $80 + 7 =$
15. $87 + 1 =$
16. $66 + 3 =$
17. $66 + 2 =$
18. $60 + 7 =$
19. $62 + 4 =$
20. $63 + 2 =$

Table 3.44

- A game to play with a friend.
- Take turns to say the answer to a number sentence on your side.
- Colour in the block if your answer is correct.
- The winner is the one who has coloured in all the blocks first.

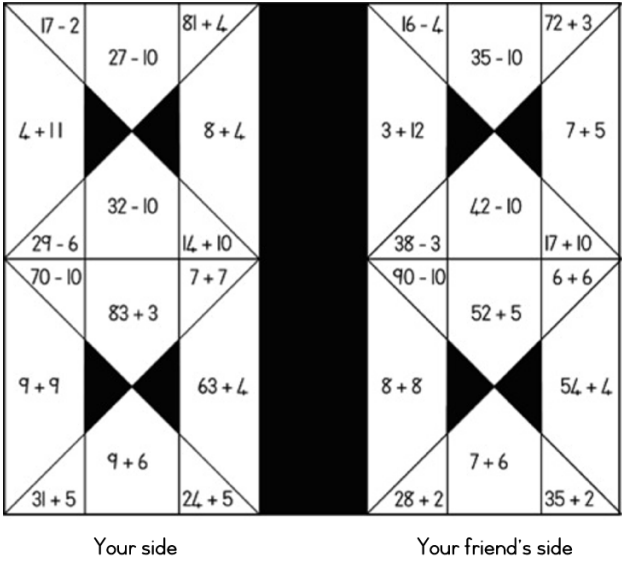


Figure 3.70

LO 1.8	
--------	--

Table 3.45

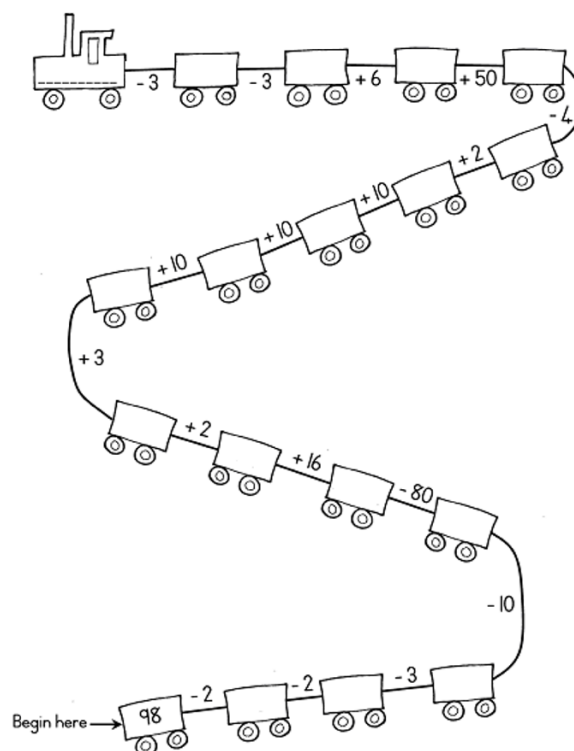


Figure 3.71

LO 1.8	
--------	--

Table 3.46

3.9.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;
- 1.10.2 doubling and halving;
- 1.10.3 using concrete apparatus (e.g. counters);
- 1.10.4 number-lines.

3.10 All about 18¹⁰

3.10.1 MATHEMATICS

3.10.2 Mathematics in the world around us

3.10.3 EDUCATOR SECTION

3.10.4 Memorandum

3.10.5 Critical and developmental outcomes:

The learners must be able to:

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4. collect, analyse, organise and critically evaluate information;
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6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
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- Using their imagination they can create animals, using shapes.

3.10.6 LEARNER SECTION

3.10.7 Content

ACTIVITY: All about eighteen [LO 1.4, LO 1.5, LO 1.9, LO 2.2]

- Add 1, 2, 3, or 4 to make 18.

¹⁰This content is available online at <<http://cnx.org/content/m32477/1.1/>>.

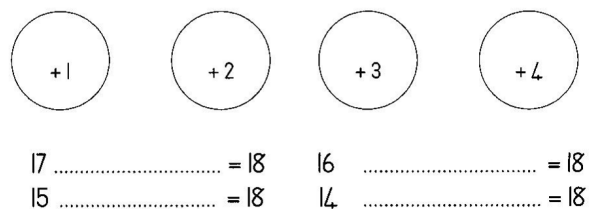


Figure 3.72

-
- Now write the number sentences of 18 the other way, e.g.

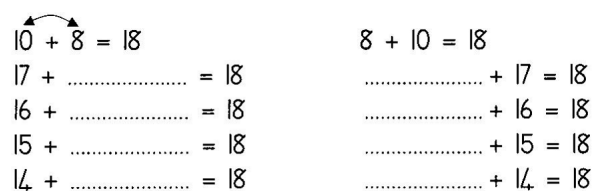


Figure 3.73

-
- Complete:

$13 + 3 \dots\dots\dots + \dots\dots\dots = 18$ so $13 + \dots\dots\dots = 18$
 $12 + 2 \dots\dots\dots + \dots\dots\dots = 18$ so $12 + \dots\dots\dots = 18$

LO 1.9	
--------	--

Table 3.47

- Complete:

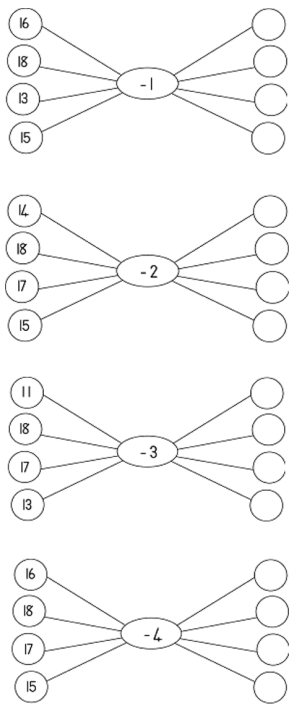


Figure 3.74

LO 1.9	
--------	--

Table 3.48

3.10.7.1 A game about eighteen

- Load the truck and finish the journey.
- Follow the arrows to the different places.

3.10.7.2 All about eighteen

☺ Add some of these numbers to make 18.
Draw a circle around the numbers you used, e.g.

☹ Write the number sentences. $10 + 3 + 5 = 18$

1009
238
154

9810
142
630

= 18

878
523
411

1148
935
210

849
237
164

862
434
180

424
340
872

719
240
3110

513
257
495

3123
598
663

Figure 3.76

LO 1.9	
--------	--

Table 3.50

- Revise and complete.

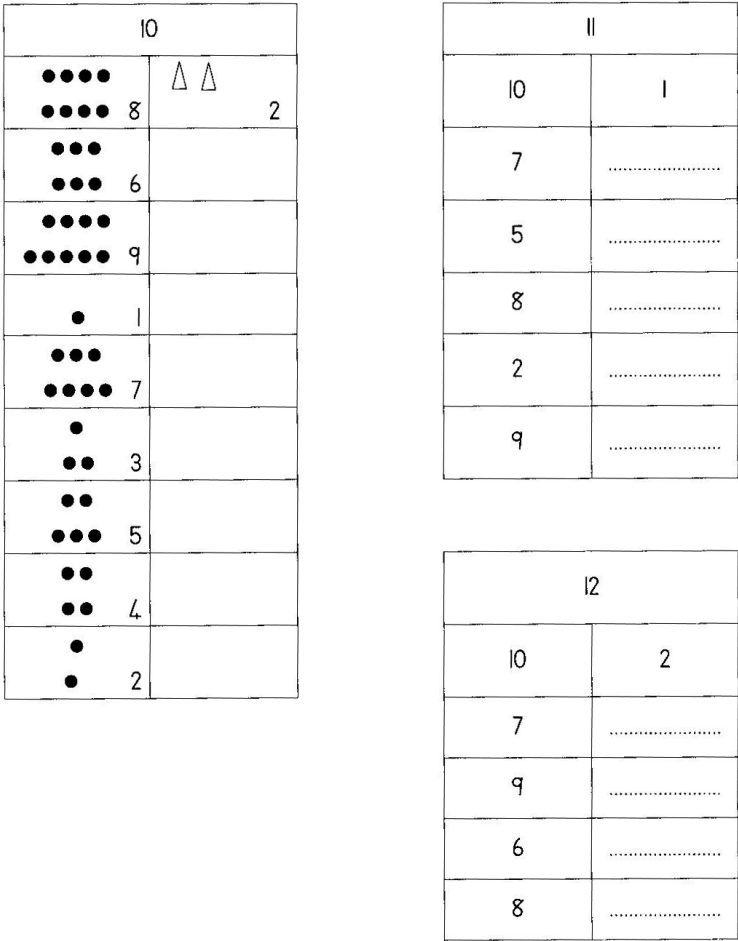


Figure 3.77

LO 1.9	
--------	--

Table 3.51

- Revise and complete.

13		14		15	
10	3	10	4	10	5
12	.....	9	.....	12	.....
9	.....	12	.....	14	.....
11	.....	11	.....	11	.....
8	.....	8	.....	13	.....
6	.....	7	.....	9	.....

16		17		18	
10	6	10	7	10	8
13	.....	2	.....	13	.....
11	.....	4	.....	15	.....
9	.....	11	.....	14	.....
12	.....	5	.....	12	.....
8	.....	9	.....	11	.....

Figure 3.78

LO 1.9	
--------	--

Table 3.52

- Look! Read the numbers and their place values.

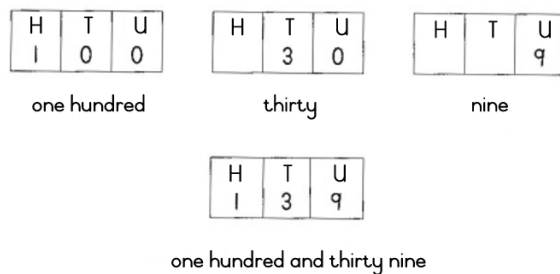


Figure 3.79

- Complete the place values of,
- the 4 in 14 _____
- the 4 in 41 _____
- the 1 in 104 _____
- the 1 in 31 _____
- the 1 in 16 _____
- the 7 in 74 _____
- the 7 in 57 _____
- the 9 in 19 _____
- the 9 in 91 _____

LO 1.5	
--------	--

Table 3.53

- Arrange these series of numbers from the least to the most.

A.	80,	18,	108,	8,	88.

B.	204,	26,	129,	2,	22.

C.	94,	19,	109,	99,	9.

Figure 3.80

- Arrange these series of numbers from the most to the least.

A.	80,	18,	108,	8,	88.

B.	204,	26,	129,	2,	22.

C.	94,	19,	109,	99,	9.

Figure 3.81

LO 1.4	
--------	--

Table 3.54

- Complete the counting patterns on each wheel.
- Follow the arrows.

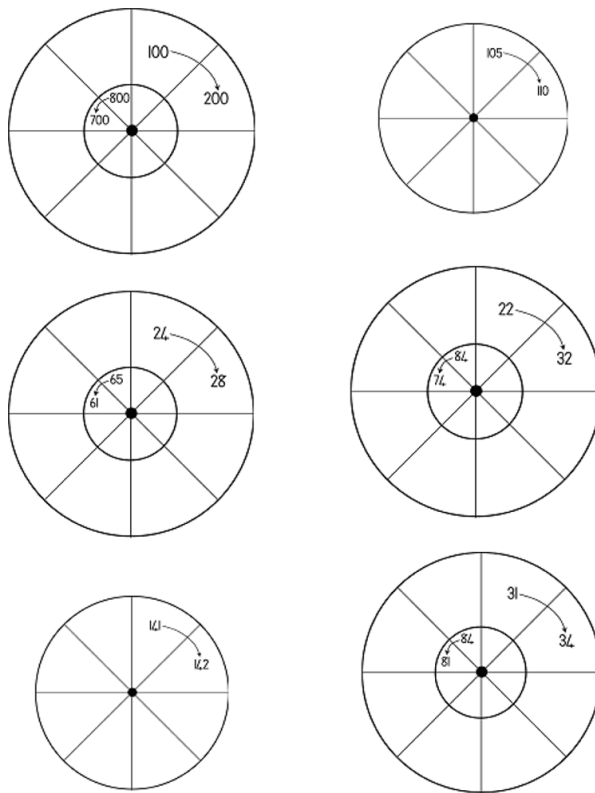


Figure 3.82

LO 2.2	
--------	--

Table 3.55

3.10.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.4: We know this when the learner orders, describes and compares numbers;

Assessment Standard 1.5: We know this when the learner recognises the place value of digits in whole numbers to at least 2-digit numbers;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

3.11 Work with squares and circles¹¹

3.11.1 MATHEMATICS

3.11.2 Mathematics in the world around us

3.11.3 EDUCATOR SECTION

3.11.4 Memorandum

3.11.5 Critical and developmental outcomes:

The learners must be able to:

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3.11.6 LEARNER SECTION

3.11.7 Content

ACTIVITY: Work with squares and circles[LO 1.2, LO 1.3, LO 1.9, LO 2.2]

- Add up all the numbers in the square to make the total in the circle.
- Complete the squares.

¹¹This content is available online at <<http://cnx.org/content/m32478/1.1/>>.

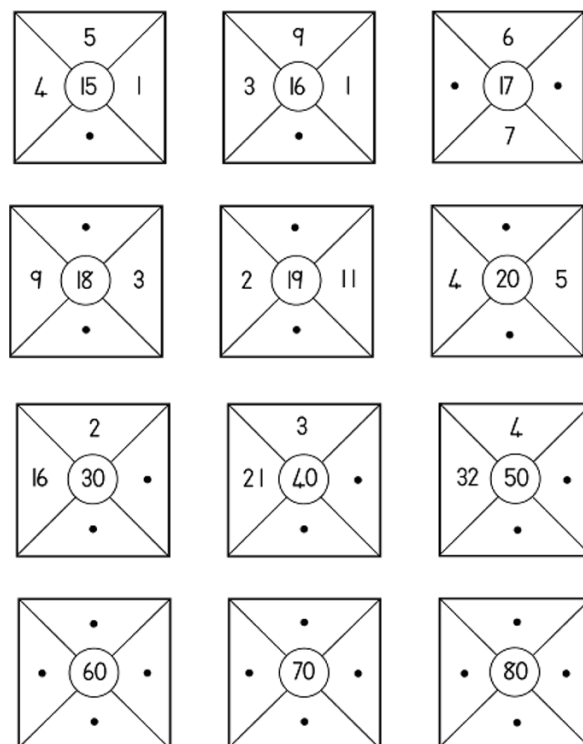


Figure 3.83

LO 1.9	
--------	--

Table 3.56

- Add diagonally
- Each diagonal must have the same total.
- Use different numbers.

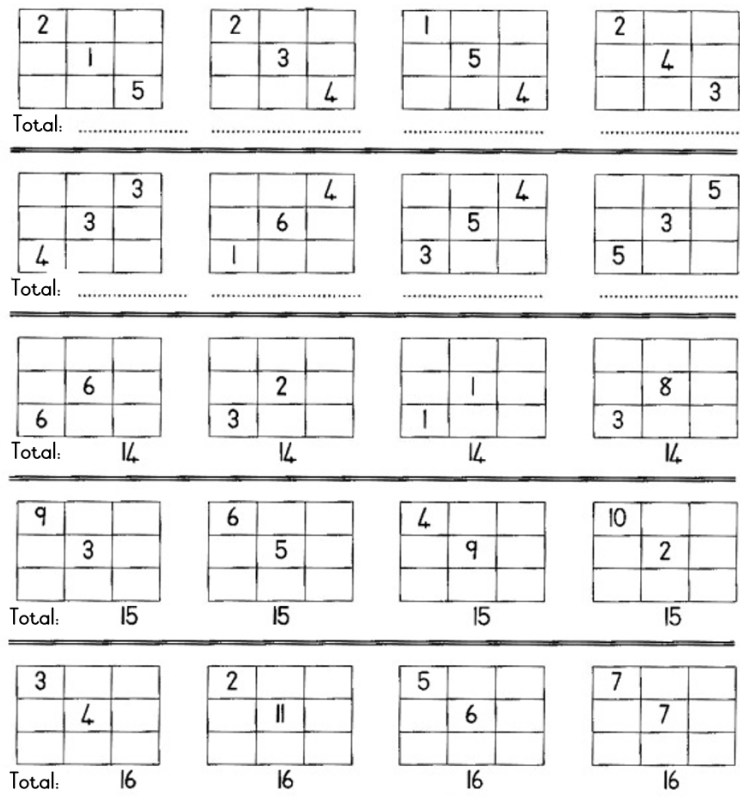


Figure 3.84

LO 1.9	
--------	--

Table 3.57

- Complete the number sequence in each block.

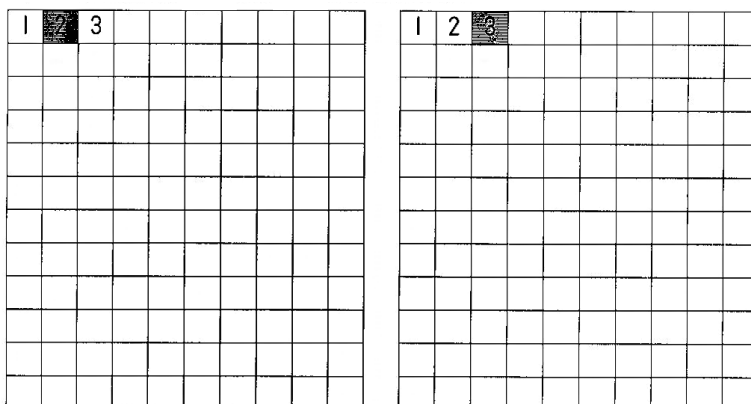


Figure 3.85

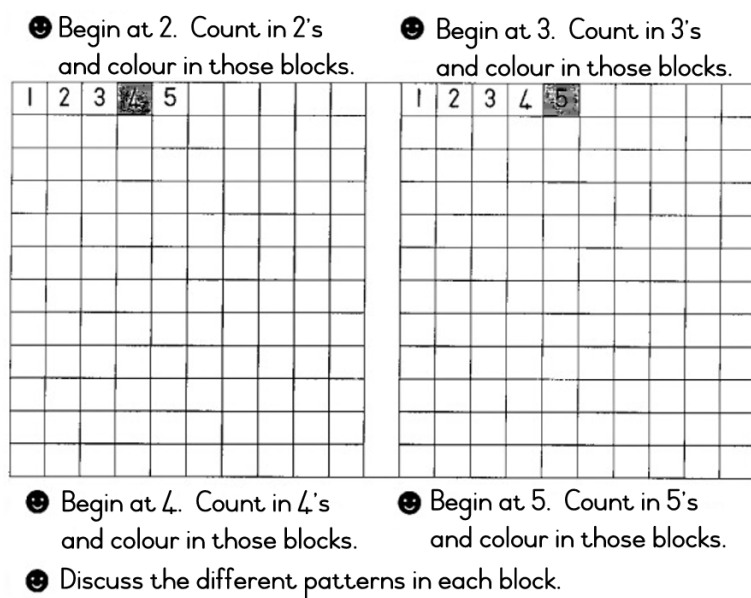


Figure 3.86

LO 1.2	LO 2.2	
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Table 3.58

- Complete the number block.

101	102								
									180

Table 3.59

- Count in ones from 101 to 180.
- Count backwards from 180 to 101.
- Count in tens from 110 to 180.
- Count backwards in tens from 180 to 110.
- Count in fives from 105 to 180.
- Count backwards in fives from 180 to 105.
- Count in twos from 102 to 180.
- Count backwards in twos from 180 to 102.

- Complete:

38 thirty -----
27 -----
49 -----
88 -----

LO 1.2		LO 1.3		LO 2.2	
--------	--	--------	--	--------	--

Table 3.60

3.11.8 Assessment

Learning Outcome 1:The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.9: We know this when the learner performs mental calculations.

Learning Outcome 2:The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

3.12 Multiples of 5 and 10¹²

3.12.1 MATHEMATICS

3.12.2 Mathematics in the world around us

3.12.3 EDUCATOR SECTION

3.12.4 Memorandum

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Integration of Themes:

- **Inclusively and Human rights:** Everyone in a class deserves to be challenged. Special creative work should not be given to the bright learners only. Opportunities to extend, to experiment and to discover should be present to everyone in the class. This will encourage learners to try new methods, to learn from their peers and to take risks. Discuss in small groups whether we should be given work to make us think.
- Practical experience with halves and quarters is given.
- Number concept is extended beyond 200 and counting patterns stressed.
- Learners are carefully guided to understand the rounding off of numbers to the nearest multiple.
- Bonds of 17, 18 and 20 are introduced.
- Number values and place values are taught with diagrams.
- The multiplication tables of 10 and 5 are set out.
- Learners can create their own patterns, and games for consolidating number facts are included.
- Using their imagination they can create animals, using shapes.

3.12.6 LEARNER SECTION

3.12.7 Content

ACTIVITY: Multiples of five and ten [LO 1.9, LO 2.3, LO 3.1]

¹²This content is available online at <<http://cnx.org/content/m32485/1.1/>>.

3.12.7.1 Multiples of ten

- Complete:

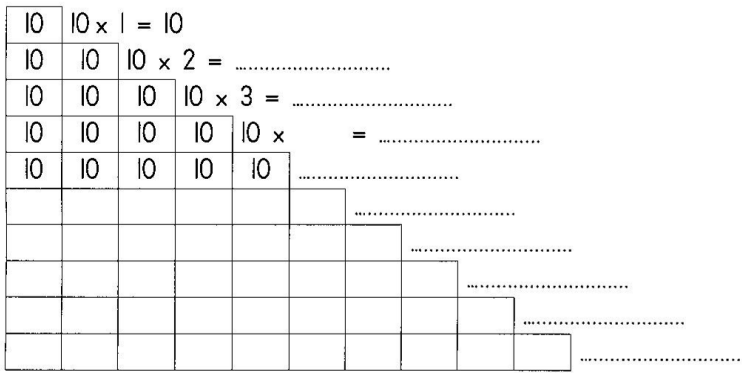


Figure 3.87

-
- Complete:

$10 \times 6 =$	$6 \times 10 =$
$10 \times 8 =$	$8 \times =$
$10 \times 10 =$	
$10 \times 0 =$	
$10 \times 7 =$	
$10 \times 5 =$	
$10 \times 9 =$	

Figure 3.88

LO 1.9	
--------	--

Table 3.61

- Voltooi:

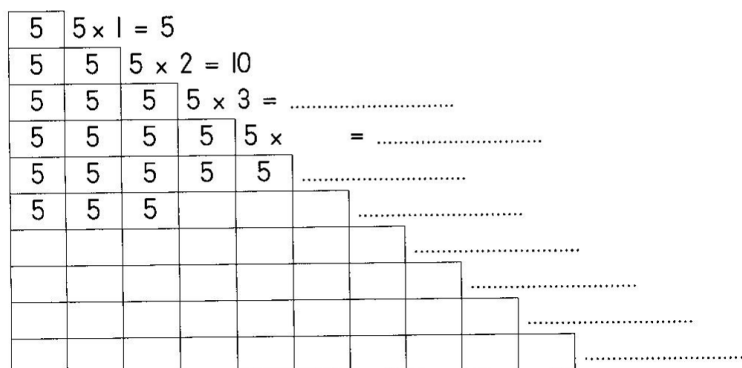


Figure 3.89

-
- Voltooi.

$5 \times 2 = \dots\dots\dots$	$2 \times 5 = \dots\dots\dots$
$5 \times 5 = \dots\dots\dots$	$\dots\dots\dots$
$5 \times 10 = \dots\dots\dots$	$\dots\dots\dots$
$5 \times 3 = \dots\dots\dots$	$\dots\dots\dots$
$5 \times 4 = \dots\dots\dots$	$\dots\dots\dots$
$5 \times 6 = \dots\dots\dots$	$\dots\dots\dots$
$5 \times 8 = \dots\dots\dots$	$\dots\dots\dots$
$5 \times 7 = \dots\dots\dots$	$\dots\dots\dots$

Figure 3.90

LO 1.9	
--------	--

Table 3.62

- Use shapes to design a pattern to decorate each of these frames.
- Draw a “photo” of a vehicle in each frame.
- Colour in your shapes.

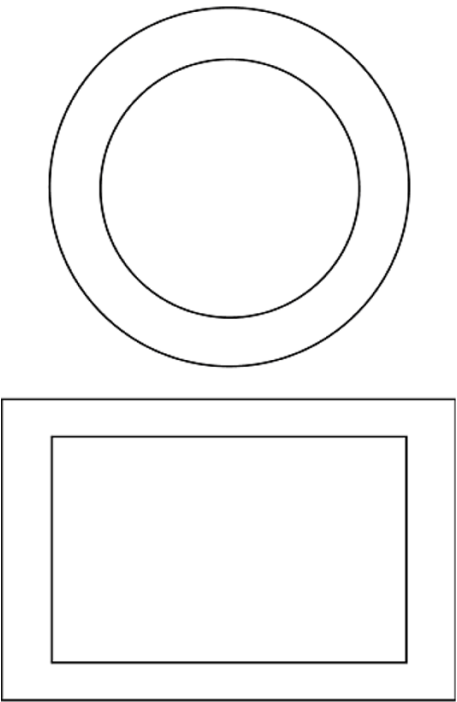


Figure 3.91

LO 2.3		LO 3.1	
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Table 3.63

- Use different shapes like circles, triangles, squares, rectangles, ovals, diamonds, etc., of different sizes to draw vehicles like cars, trucks, lorries, motorbikes, vans, planes, etc.
- Discuss the vehicles you have drawn and the shapes you have used with a friend.
- Colour in your pictures.

LO 3.1	
--------	--

Table 3.64

3.12.8 Assessment

Learning Outcome 1:The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.9: We know this when the learner performs mental calculations.

Learning Outcome 2:The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.3: We know this when the learner creates own patterns.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures.

Chapter 4

Term 4

4.1 Addition, minus, multiplication and doubling¹

4.1.1 MATHEMATICS

4.1.2 Mathematics in the world around us

4.1.3 EDUCATOR SECTION

4.1.4 Memorandum

4.1.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

Integration of Themes:

- **Inclusively:** We can all learn from one another. Each person's culture can stimulate and enrich another's. Show how this can be done.
- **Human rights:** Learners must respect the differences amongst themselves. Decide how they are different, yet as worthy as their fellow classmates.
- **A healthy environment:** Flowers enhance our environment. Nature them. Healthy foods give us healthy bodies. Discuss healthy, nourishing foods and list them. Do a survey to find out whether your classmates eat healthy foods.

¹This content is available online at <<http://cnx.org/content/m32483/1.1/>>.

- Number concept and counting to and beyond 200 are practised.
- Even and uneven numbers, rounding off numbers and place values are revised.
- The table of 4 and 3 and sharing activities are included in this module.
- Addition with renaming is practised.
- Doubling with renaming.
- Bonds of 19.
- The following activities have also been included: mass, capacity, fractions and distance.
- Learners are introduced to the objects: pyramids, prisms and cylinders.
- The faces of these 3-D shapes are discussed and compared.

4.1.6 LEARNER SECTION

4.1.7 Content

4.1.7.1 ACTIVITY: Addition, minus, multiplication and doubling [LO 1.2, LO 1.7, LO 1.8, LO 1.9, LO 2.3, LO 2.4, LO 2.5]

- Look at and discuss the patterns on the clay pot.
- Name the different shapes you can see.
- Design your own patterns on the jar.

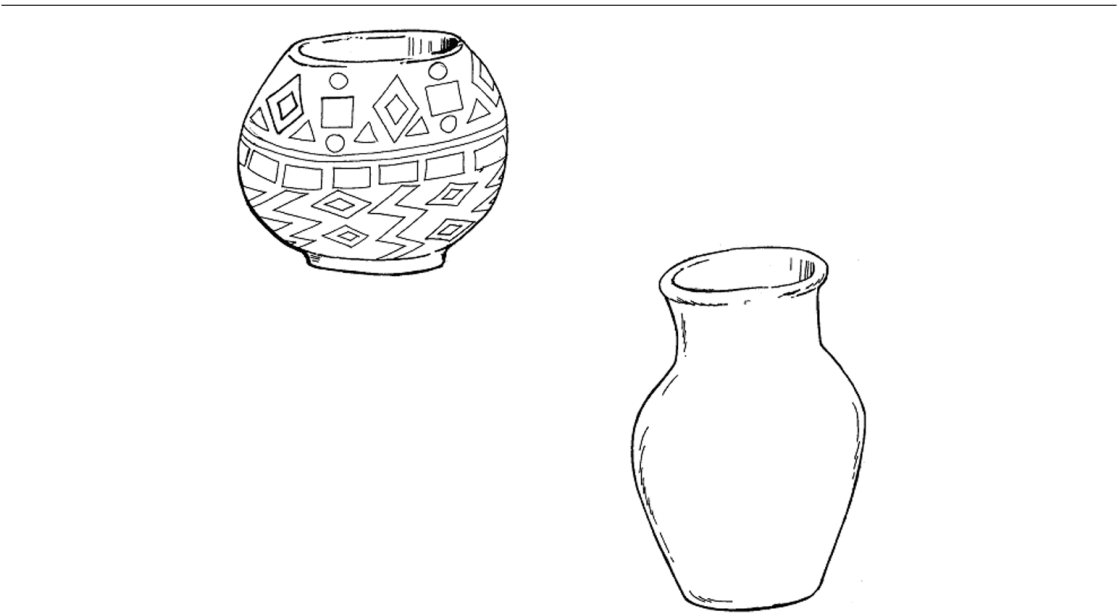


Figure 4.1

LO 2.3		LO 2.4		LO 2.5	
--------	--	--------	--	--------	--

Table 4.1

- Complete. How many flowers in the vases?

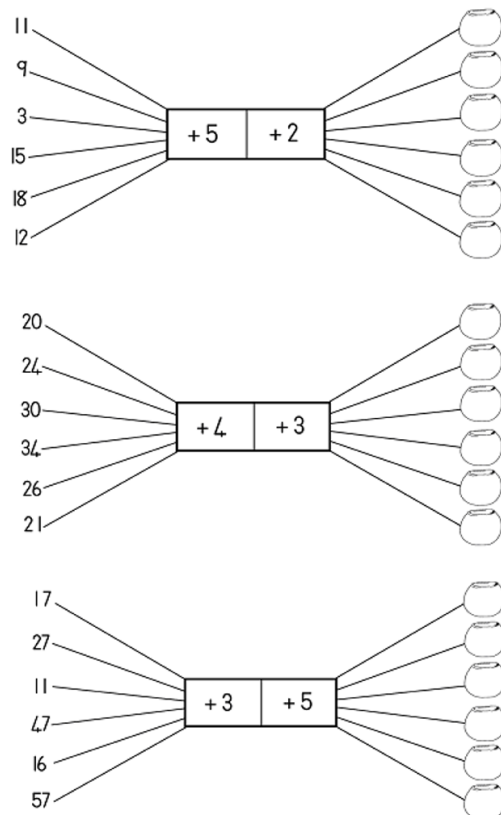


Figure 4.2

LO 1.8	
--------	--

Table 4.2

- Complete. How many sweets left on the plates?

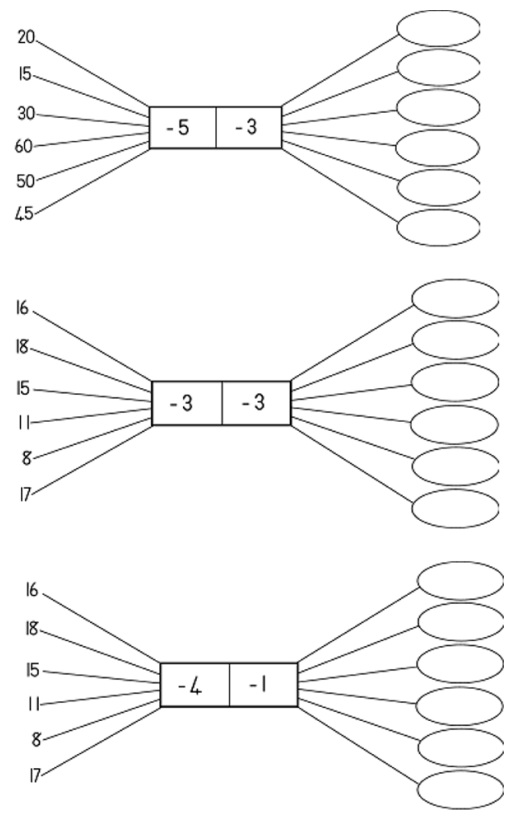


Figure 4.3

LO 1.8	
--------	--

Table 4.3

- Share out these biscuits amongst 10 children.

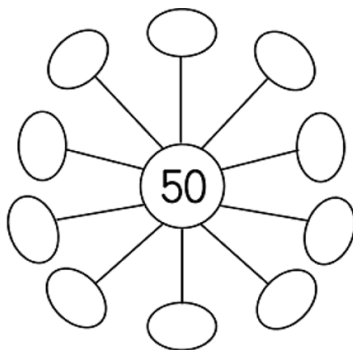


Figure 4.4

Each child will get _____ biscuits.

- Share out these cards amongst 10 girls.

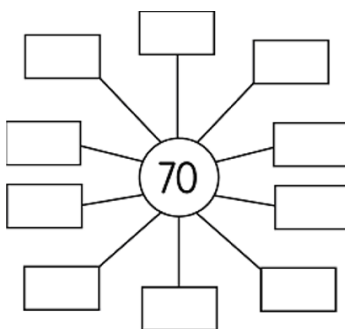


Figure 4.5

Each girl will get _____ cards.

- Share out these buttons for 5 shirts.

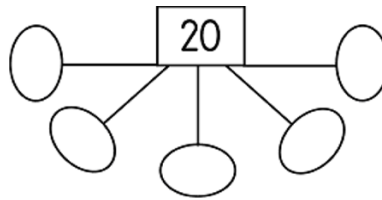


Figure 4.6

Each shirt can have _____ buttons.

- Share out these flowers for 5 vases.

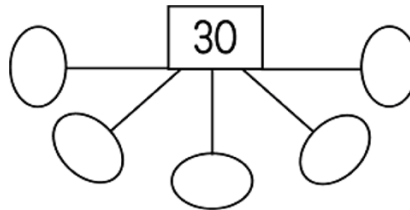


Figure 4.7

Each vase will have _____ flowers.

- Share out these pancakes amongst 5 children.

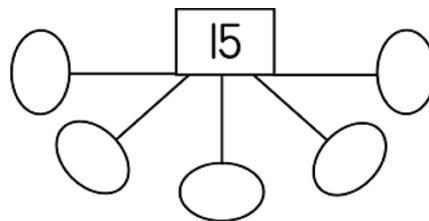


Figure 4.8

Each child will get _____ pancakes.

Table 4.4

- Count in 2's to 20.

0, 2, 4, _____, _____, _____, _____, _____, _____, _____, 20.

Count:

six two's, so $2 \times 6 =$ _____

four two's, so $2 \times 4 =$ _____

nine two's, so $2 \times 9 =$ _____

seven two's, so $2 \times$ _____ $=$ _____

three two's, so _____ \times _____ $=$ _____

five two's, so _____ \times _____ $=$ _____

ten two's, so _____ \times _____ $=$ _____

eight two's, so _____ \times _____ $=$ _____

LO 1.2		LO 1.9	
--------	--	--------	--

Table 4.5

- Count in 4's to 40.

0, 4, 8, _____, _____, _____, _____, _____, _____, _____, 40.

Tel : Count: six fours, so $4 \times 6 =$ _____

four fours, so $4 \times 4 =$ _____

nine fours, so $4 \times 9 =$ _____

seven fours, so $4 \times$ _____ $=$ _____

three fours, so _____ \times _____ $=$ _____

five fours, so _____ \times _____ $=$ _____

ten fours, so _____ \times _____ $=$ _____

eight fours, so _____ \times _____ $=$ _____

LO 1.2		LO 1.9	
--------	--	--------	--

Table 4.6

- See who can finish first.

$5 \times 5 =$ _____

$4 \times 10 =$ _____

$7 \times 5 =$ _____

$9 \times 10 =$ _____

$8 \times 5 =$ _____

$3 \times 10 =$ _____

$2 \times 5 =$ _____

$1 \times 10 =$ _____

$10 \times 5 =$ _____

$0 \times 10 =$ _____

$0 \times 5 =$ _____

$10 \times 10 =$ _____

1 x 5 = _____
2 x 10 = _____
3 x 5 = _____
8 x 10 = _____
9 x 5 = _____
7 x 10 = _____
4 x 5 = _____
5 x 10 = _____

_____ (Name) won

LO 1.9	
--------	--

Table 4.7

- See who can finish first.

5 x 2 = _____
4 x 4 = _____
7 x 2 = _____
9 x 4 = _____
8 x 2 = _____
3 x 4 = _____
2 x 2 = _____
1 x 4 = _____
10 x 2 = _____
0 x 4 = _____
0 x 2 = _____
10 x 4 = _____
1 x 2 = _____
2 x 4 = _____
3 x 2 = _____
8 x 4 = _____
9 x 2 = _____
7 x 4 = _____
4 x 2 = _____
5 x 4 = _____

- Count backwards from 40 in 4's.

40, 36, _____, _____, _____, _____, _____, _____, _____, _____, 0.

- Count backwards from 20 in 2's.

20, 18, _____, _____, _____, _____, _____, _____, _____, _____, 0.

LO 1.2		LO 1.9	
--------	--	--------	--

Table 4.8

4.1.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards;

Assessment Standard 1.7: We know this when the learner solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary fractions (eg. $\frac{1}{4}$);

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.3: We know this when the learner creates own patterns;

Assessment Standard 2.4: We know this when the learner describes observed patterns;

Assessment Standard 2.5: We know this when the learner identifies, describes and copies geometric patterns in natural and cultural artefacts of different cultures and times.

4.2 Place value and number sentences²

4.2.1 MATHEMATICS

4.2.2 Mathematics in the world around us

4.2.3 EDUCATOR SECTION

4.2.4 Memorandum

4.2.5 Critical and developmental outcomes:

The learners must be able to:

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2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
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6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
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Integration of Themes:

- **Inclusively:** We can all learn from one another. Each person's culture can stimulate and enrich another's. Show how this can be done.
- **Human rights:** Learners must respect the differences amongst themselves. Decide how they are different, yet as worthy as their fellow classmates.

²This content is available online at <<http://cnx.org/content/m32487/1.1/>>.

- **A healthy environment:** Flowers enhance our environment. Nature them. Healthy foods give us healthy bodies. Discuss healthy, nourishing foods and list them. Do a survey to find out whether your classmates eat healthy foods.
- Number concept and counting to and beyond 200 are practised.
- Even and uneven numbers, rounding off numbers and place values are revised.
- The table of 4 and 3 and sharing activities are included in this module.
- Addition with renaming is practised.
- Doubling with renaming.
- Bonds of 19.
- The following activities have also been included: mass, capacity, fractions and distance.
- Learners are introduced to the objects: pyramids, prisms and cylinders.
- The faces of these 3-D shapes are discussed and compared.

4.2.6 LEARNER SECTION

4.2.7 Content

4.2.7.1 ACTIVITY: Place values and number sentences [LO 1.5, LO 1.6, LO 1.8, LO 1.10]

- Complete.

$$28 = 2 \text{ tens} + 8 \text{ units}$$

54 = _____ tens + _____ units
 44 = _____
 83 = _____
 98 = _____
 64 = _____
 32 = _____
 19 = _____
 29 = _____
 48 = _____
 61 = _____
 73 = _____

- Complete.

$$26 = 20 + 6$$

59 = _____ + _____
 47 = _____ + _____
 82 = _____ + _____
 91 = _____ + _____
 66 = _____ + _____
 39 = _____ + _____
 19 = _____ + _____
 24 = _____ + _____
 45 = _____ + _____
 68 = _____ + _____
 76 = _____ + _____

LO 1.5		LO 1.10	
--------	--	---------	--

Table 4.9

- Herbenoem die getal in die sirkel en voltooi die getalsin, bv.

$$26 + \textcircled{23} \longrightarrow 26 + 20 + 3 \longrightarrow$$

$$46 + 3 \longrightarrow 49$$

So $26 + 23 = 49$

1. $43 + \textcircled{15} \longrightarrow 43 + \dots + \dots \longrightarrow$

$$\dots + \dots \longrightarrow \dots$$

So $43 + 15 = \dots$

2. $31 + \textcircled{25} \longrightarrow 31 + \dots \longrightarrow$

$$\dots \longrightarrow \dots$$

So $31 + 25 = \dots$

3. $16 + \textcircled{33} \longrightarrow 16 \dots \longrightarrow$

$$\dots \longrightarrow \dots$$

So \dots

Figure 4.9

LO 1.8		LO 1.10	
--------	--	---------	--

Table 4.10

- Read these story sums carefully.
- Think! Must you add or must you subtract?

1. Liz spent 31 c and Sally spent 25 c. How much did they spend altogether?

They spent ----- c altogether.

2. Henry has saved R43. Mo has saved R24 more than Henry. How much has Mo saved?

Mo has saved R _____
 3. Mike paid R53 for a book and R24 for crayons. How much did he spend altogether?

Mike spends R _____ altogether.
 4. Des had 62c. He bought marbles for 31c. How much has he left?

Des has _____ c left.
 5. Sisulu had R98. He spent R33. How much has he left?

Sisulu has R _____ left?
 6. Tom had 29c. He gave Des 16c. How much has Tom left?

Tom has _____ c left.

LO 1.6		LO 1.8	
--------	--	--------	--

Table 4.11

4.2.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.5: We know this when the learner recognises the place value of digits in whole numbers to at least 2-digit numbers;

Assessment Standard 1.6: We know this when the learner solves money problems involving totals and change in rands and cents, including converting between rands and cents.

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.1 building up and breaking down numbers;

1.10.2 doubling and halving;

1.10.3 number-lines;

1.10.4 rounding off in tens.

4.3 Multiples and sharing³

4.3.1 MATHEMATICS

4.3.2 Mathematics in the world around us

4.3.3 EDUCATOR SECTION

4.3.4 Memorandum

4.3.5 Critical and developmental outcomes:

The learners must be able to:

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 - **A healthy environment:** Flowers enhance our environment. Nature them. Healthy foods give us healthy bodies. Discuss healthy, nourishing foods and list them. Do a survey to find out whether your classmates eat healthy foods.
-
- Number concept and counting to and beyond 200 are practised.
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 - The table of 4 and 3 and sharing activities are included in this module.
 - Addition with renaming is practised.
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³This content is available online at <<http://cnx.org/content/m32488/1.1/>>.

4.3.6 LEANER SECTION

4.3.7 Content

4.3.7.1 ACTIVITY: Multiples and sharing [LO 1.2, LO 1.7, LO 1.9, LO 5.6]

- Complete:

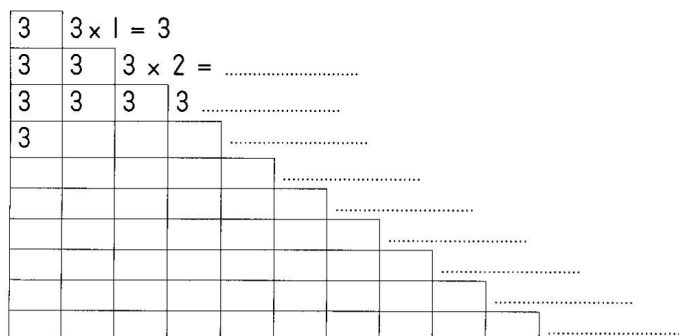


Figure 4.10

- Complete:

$3 \times 4 =$ _____
 $3 \times 2 =$ _____
 $3 \times 5 =$ _____
 $3 \times 10 =$ _____
 $3 \times 1 =$ _____
 $3 \times 9 =$ _____
 $3 \times 7 =$ _____
 $4 \times 3 =$ _____
 $2 \times 3 =$ _____
 $5 \times 3 =$ _____
 $10 \times 3 =$ _____
 $1 \times 3 =$ _____
 $9 \times 3 =$ _____
 $7 \times 3 =$ _____

LO 1.9	
--------	--

Table 4.12

- Tom wants to build tricycles.
- He needs to know how many wheels to buy for:


3 tricycles		$3 \times 3 = \dots\dots\dots$
5 tricycles		
4 tricycles		
7 tricycles		
2 tricycles		
8 tricycles		
10 tricycles		
6 tricycles		
9 tricycles		

Figure 4.11

LO 1.2		LO 1.9	
--------	--	--------	--

Table 4.13

- Share out these smarties into 3 bags.

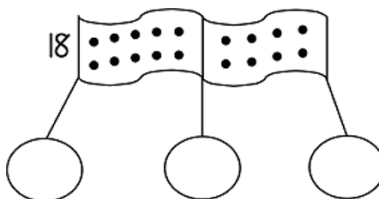


Figure 4.12

Each bag has _____ smarties.

- Share out these apples amongst 3 horses.

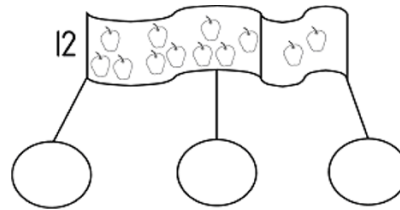


Figure 4.13

Each horse gets _____ apples.

- Share out these marbles amongst 3 boys.

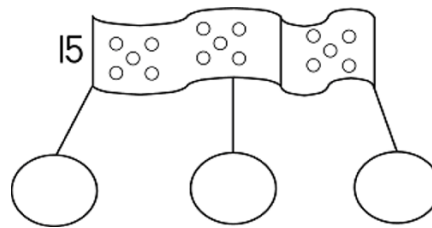


Figure 4.14

Each boy gets _____ marbles.

LO 1.7	
--------	--

Table 4.14

- Share out these smarties into 3 bags.

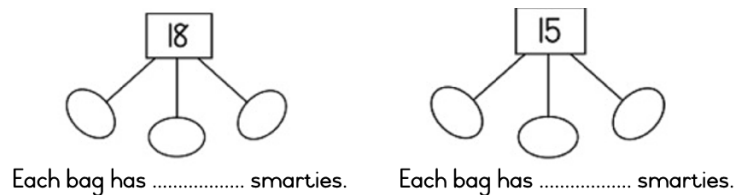


Figure 4.15

-
- Share out these sweets between 2 children.

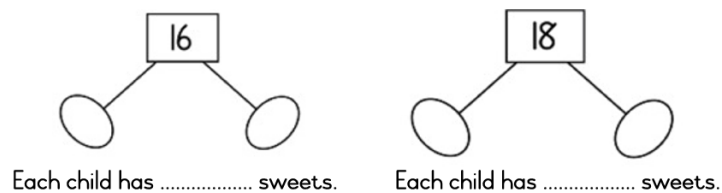


Figure 4.16

-
- Share out these marbles into 5 bags.

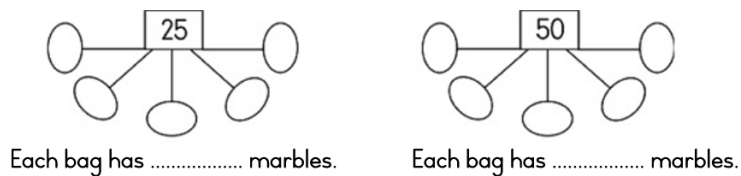


Figure 4.17

LO 1.7	
--------	--

Table 4.15

- Complete the tables.

Tricycles	1	4	3	5	7	9	8	10	6	2	0
Wheels	3										

Table 4.16

Bicycles	1	4	3	5	7	9	8	10	6	2	0
Wheels	2										

Table 4.17

Cars	1	4	3	5	7	9	8	10	6	2	0
Wheels	4										

Table 4.18

Trucks	1	4	3	5	7	9	8	10	6	2	0
Wheels	10										

Table 4.19

3 Tricycles have _____ wheels.
9 Tricycles have _____ wheels.
3 Bicycles _____ wheels.
9 Bicycles _____ wheels.

Tricycles	1										
Wheels	3	9	30	12	24	6	15	0	27	18	21

Table 4.20

Bicycles	1										
Wheels	3	9	30	12	24	6	15	0	27	18	21

Table 4.21

Cars	1										
Wheels	3	9	30	12	24	6	15	0	27	18	21

Table 4.22

Trucks	1										
Wheels	3	9	30	12	24	6	15	0	27	18	21

Table 4.23

LO 1.2		LO 5.6	
--------	--	--------	--

Table 4.24

4.3.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards;

Assessment Standard 1.7: We know this when the learner solves and explains solutions to practical problems that involve equal sharing and grouping and that lead to solutions that also include unitary fractions (eg. $\frac{1}{4}$);

Assessment Standard 1.9: We know this when the learner performs mental calculations.

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.3: We know this when the learner creates own patterns.

4.4 Mass and distances⁴

4.4.1 MATHEMATICS

4.4.2 Mathematics in the world around us

4.4.3 EDUCATOR SECTION

4.4.4 Memorandum

4.4.5 Critical and developmental outcomes:

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- **Inclusively:** We can all learn from one another. Each person's culture can stimulate and enrich another's. Show how this can be done.
- **Human rights:** Learners must respect the differences amongst themselves. Decide how they are different, yet as worthy as their fellow classmates.
- **A healthy environment:** Flowers enhance our environment. Nature them. Healthy foods give us healthy bodies. Discuss healthy, nourishing foods and list them. Do a survey to find out whether your classmates eat healthy foods.

- Number concept and counting to and beyond 200 are practised.

⁴This content is available online at <<http://cnx.org/content/m32490/1.1/>>.

- Even and uneven numbers, rounding off numbers and place values are revised.
- The table of 4 and 3 and sharing activities are included in this module.
- Addition with renaming is practised.
- Doubling with renaming.
- Bonds of 19.
- The following activities have also been included: mass, capacity, fractions and distance.
- Learners are introduced to the objects: pyramids, prisms and cylinders.
- The faces of these 3-D shapes are discussed and compared.

4.4.6 LEANER SECTION

4.4.7 Content

4.4.7.1 ACTIVITY: Mass and distances [LO 1.2, LO 1.3, LO 1.4, LO 1.8, LO 1.10, LO 2.2, LO 4.3, LO 4.7]

4.4.7.1.1 Tom's backpack

1 lunch box with 4 sandwiches
 1 ℓ of cool drink
 3 apples
 2 chocolates

4.4.7.1.2 Des' backpack

1 lunch box with 6 sandwiches
 2 ℓ of cool drink
 1 apple
 2 chocolates

Answer these questions.

1. _____ (name) lunch box has the greater mass. Why?
2. _____ (name) lunch box has the smaller mass. Why?
3. One litre bottle can fill 4 mugs.
4. Tom will drink _____ mugs of cool drink.
5. Des will drink _____ mugs of cool drink.
6. Tom eats one quarter of an apple a day. He will eat a quarter of an apple for _____ days.
7. Des eats one half of an apple a day. He will eat half an apple for _____ days.
8. The chocolate has 8 squares. They eat 4 squares a day. They each have 4 squares for _____ days.

LO 1.4		LO 4.7	
--------	--	--------	--

Table 4.25

- Complete.
1. Tom and Des walked 5 km in one day. They will walk:
 10 km in _____ days.
 25 km in _____ days.

- 50 km in _____ days.
2. The camp is 15 km from Tom's house and 12 km from Des' house. Tom's house is _____ km further.
3. Tom can hit the ball 35 m far.
Des can hit the ball 4 m further.
He can hit the ball _____ m.
4. Tom counted 28 birds.
Des counted 5 less.
Des counted _____ birds.
5. They left the house at 8 o'clock in the morning. The first day they came to the campsite at 3 o'clock in the afternoon. They walked for _____ hours.

LO 1.8		LO 4.3		LO 4.7	
--------	--	--------	--	--------	--

Table 4.26

4.4.7.1.3 Number the houses

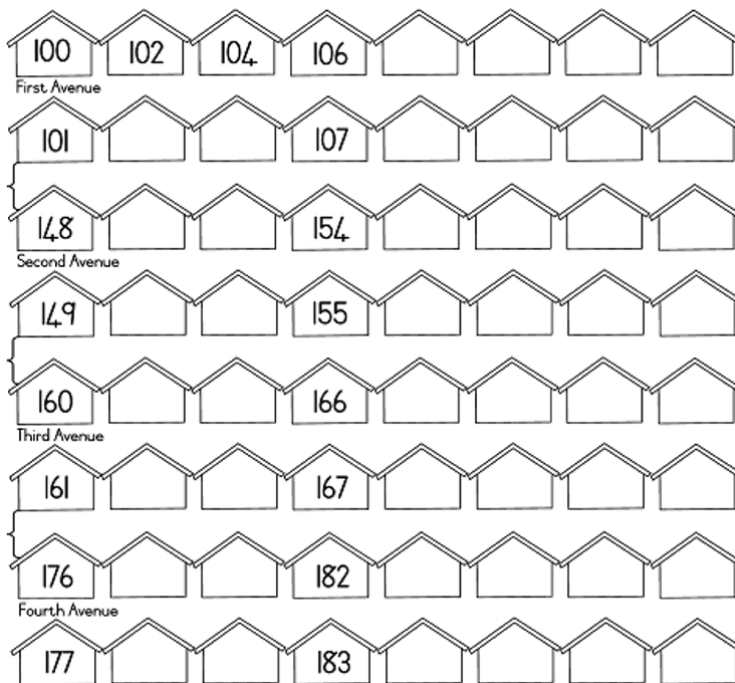


Figure 4.18

LO 1.3		LO 1.4		LO 2.2	
--------	--	--------	--	--------	--

Table 4.27

- Complete the counting pattern. Join the numbers.

36	64	38	66	70	71	72	51	80
63	37	65	40	67	69	50	73	52
62	60	39	68	41	49	74	79	53
61	45	59	44	48	43	75	54	78
46	58	47	57	42	56	55	76	77

Figure 4.19

- Colour the even numbers in red.
- Colour the uneven numbers in blue.
- Round off to the nearest multiple of 10.

1	1	22	34
17	29	33	
27	41	21	
36	26	46	

LO 1.2		LO 2.2		LO 1.10	
--------	--	--------	--	---------	--

Table 4.28

- Rename and double:

$ \begin{array}{rcl} 32 & = & 30 + 2 \\ & \downarrow & \downarrow \\ & 60 & + 4 \\ & = & 64 \end{array} $	$ \begin{array}{rcl} 24 & = & 20 + 4 \\ & \downarrow & \downarrow \\ & \dots & + \dots \\ & = & \dots \end{array} $
--	--

$ \begin{array}{rcl} 11 & = & 10 + 1 \\ & \downarrow & \downarrow \\ & \dots & + \dots \\ & = & \dots \end{array} $	$14 = \dots + \dots$
--	----------------------

$34 = \dots + \dots$	$42 = \dots + \dots$
----------------------	----------------------

$13 = \dots + \dots$	$22 = \dots + \dots$
----------------------	----------------------

Figure 4.20

LO 1.8		LO 1.10	
--------	--	---------	--

Table 4.29

4.4.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.4: We know this when the learner orders, describes and compares numbers;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

1.10.1 building up and breaking down numbers;

1.10.2 doubling and halving;

1.10.3 using concrete apparatus (e.g. counters);

1.10.4 number-lines.

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.3: We know this when the learner calculates elapsed time;

Assessment Standard 4.7: We know this when the learner estimates, measures, compares and orders objects using standard measures.

4.5 Bonds⁵

4.5.1 MATHEMATICS

4.5.2 Mathematics in the world around us

4.5.3 EDUCATOR SECTION

4.5.4 Memorandum

4.5.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

Integration of Themes:

- **Inclusively:** We can all learn from one another. Each person's culture can stimulate and enrich another's. Show how this can be done.
- **Human rights:** Learners must respect the differences amongst themselves. Decide how they are different, yet as worthy as their fellow classmates.
- **A healthy environment:** Flowers enhance our environment. Nature them. Healthy foods give us healthy bodies. Discuss healthy, nourishing foods and list them. Do a survey to find out whether your classmates eat healthy foods.

- Number concept and counting to and beyond 200 are practised.

⁵This content is available online at <<http://cnx.org/content/m32491/1.1/>>.

- Even and uneven numbers, rounding off numbers and place values are revised.
- The table of 4 and 3 and sharing activities are included in this module.
- Addition with renaming is practised.
- Doubling with renaming.
- Bonds of 19.
- The following activities have also been included: mass, capacity, fractions and distance.
- Learners are introduced to the objects: pyramids, prisms and cylinders.
- The faces of these 3-D shapes are discussed and compared.

4.5.6 LEANER SECTION

4.5.7 Content

4.5.7.1 ACTIVITY: Bonds [LO 1.2, LO 1.3, LO 1.8, LO 1.9, LO 2.2]

- Count the marbles.

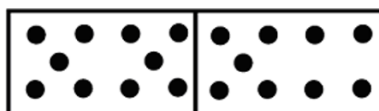


Figure 4.21

ni

4.5.7.1.1 Bonds of 19.

- Complete:

$$\begin{array}{lcl}
 18 + \text{-----} & = 19 \text{ so, } & \text{-----} + 18 = 19 \\
 10 + \text{-----} & = 19 \text{ so, } & \text{-----} + 10 = 19 \\
 13 + \text{-----} & = 19 \text{ so, } & \text{-----} + 13 = 19 \\
 11 + \text{-----} & = 19 & \text{-----} \\
 12 + \text{-----} & = 19 & \text{-----} \\
 16 + \text{-----} & = 19 & \text{-----} \\
 14 + \text{-----} & = 19 & \text{-----} \\
 1 + \text{-----} & = 19 & \text{-----} \\
 3 + \text{-----} & = 19 & \text{-----} \\
 5 + \text{-----} & = 19 & \text{-----}
 \end{array}$$

LO 1.3	LO 1.9	
--------	--------	--

Table 4.30

- Count the marbles.

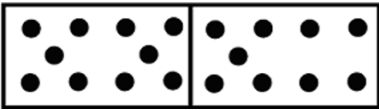


Figure 4.22

----- ni -----

- Complete:

19 - 1 = ----- so 19 - 18 = 1
19 - 4 = ----- 19 - ----- = -----
19 - 10 = ----- 19 - ----- = -----
19 - 9 = ----- 19 - ----- = -----
19 - 3 = ----- 19 - ----- = -----
19 - 6 = ----- 19 - ----- = -----
19 - 2 = ----- 19 - ----- = -----
19 - 5 = ----- 19 - ----- = -----
19 - 8 = ----- 19 - ----- = -----
19 - 7 = ----- 19 - ----- = -----

LO 1.3	LO 1.9
--------	--------

Table 4.31

- Here is a mini-dartboard.

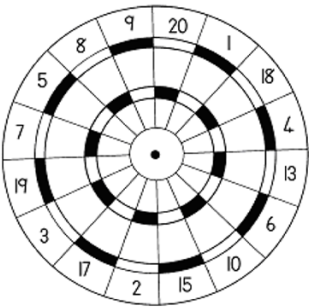


Figure 4.23

- You have 2 darts.

On which numbers must you land to make a total of 19?

- Write the results here.

----- = 19 ----- = 19
 ----- = 19 ----- = 19
 ----- = 19 ----- = 19
 ----- = 19 ----- = 19
 ----- = 19 ----- = 19

- What if you had 3 darts?

----- = 19 ----- = 19
 ----- = 19 ----- = 19
 ----- = 19 ----- = 19

LO 1.9	
--------	--

Table 4.32

- Complete the counting pattern by joining the numbers.

2	36	38	40	52	50	90	82	84
4	32	30	42	48	54	80	88	86
34	6	28	46	44	78	56	68	66
26	22	8	16	14	76	70	58	64
24	20	18	10	12	72	74	62	60

Figure 4.24

- Complete: How many cherries on the trees?

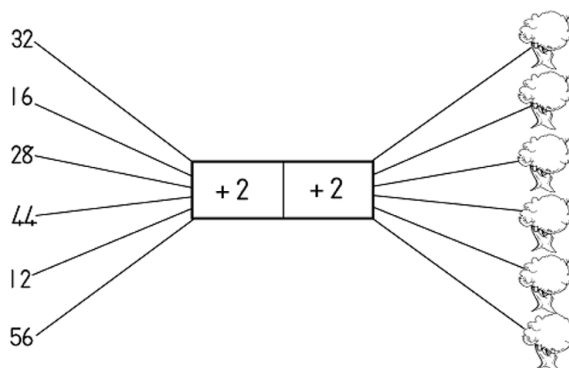


Figure 4.25

LO 1.2		LO 2.2		LO 1.8	
--------	--	--------	--	--------	--

Table 4.33

4.5.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards;

Assessment Standard 1.3: We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

4.6 Shapes⁶

4.6.1 MATHEMATICS

4.6.2 Mathematics in the world around us

4.6.3 EDUCATOR SECTION

4.6.4 Memorandum

4.6.5 Critical and developmental outcomes:

The learners must be able to:

⁶This content is available online at <<http://cnx.org/content/m32496/1.1/>>.

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;

6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;

7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

Integration of Themes:

- **Inclusively:** We can all learn from one another. Each person's culture can stimulate and enrich another's. Show how this can be done.
- **Human rights:** Learners must respect the differences amongst themselves. Decide how they are different, yet as worthy as their fellow classmates.
- **A healthy environment:** Flowers enhance our environment. Nature them. Healthy foods give us healthy bodies. Discuss healthy, nourishing foods and list them. Do a survey to find out whether your classmates eat healthy foods.

- Number concept and counting to and beyond 200 are practised.
- Even and uneven numbers, rounding off numbers and place values are revised.
- The table of 4 and 3 and sharing activities are included in this module.
- Addition with renaming is practised.
- Doubling with renaming.
- Bonds of 19.
- The following activities have also been included: mass, capacity, fractions and distance.
- Learners are introduced to the objects: pyramids, prisms and cylinders.
- The faces of these 3-D shapes are discussed and compared.

4.6.6 LEARNER SECTION

4.6.7 Content

4.6.7.1 ACTIVITY: Shapes [LO 1.2, LO 1.8, LO 2.2, LO 3.1, LO 3.2, LO 3.7]

- Where have you seen these shapes?

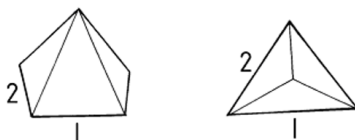


Figure 4.26

- These shapes are called **pyramids**.
- Discuss what is the same/different about them.
- Discuss their **faces** from positions 1 and 2.
- Where have you seen these shapes?

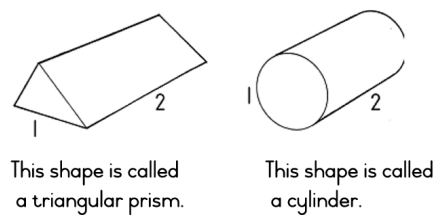


Figure 4.27

- Discuss what is the same/different about them.
- Discuss their **faces** from positions 1 and 2.
- Collect boxes that look like **pyramids**, **prisms** and **cylinders**.
- See which of them can **roll**. Why?
- See which of them can **slide**. Why?

LO 3.1		LO 3.2		LO 3.7	
--------	--	--------	--	--------	--

Table 4.34

1	3	81	7	53	51	43	41	37
83	79	5	55	9	49	45	35	39
87	77	57	71	69	11	33	23	21
85	75	73	59	67	31	13	19	17
89	91	61	63	65	29	27	15	25

Figure 4.28

Complete the counting pattern by joining the numbers.

-
- Complete: How many people are left in the shop?

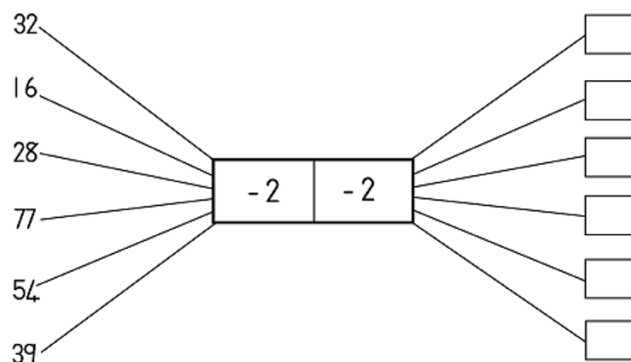


Figure 4.29

LO 1.2		LO 1.8		LO 2.2	
--------	--	--------	--	--------	--

Table 4.35

4.6.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards;

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200.

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures

Assessment Standard 3.2: We know this when the learner describes, sorts and compares two-dimensional shapes and three-dimensional objects in pictures and the environment

Assessment Standard 3.7: We know this when the learner describes positional relationships (alone and/or as a member of a group or team) between three-dimensional objects or self and a peer.

4.7 Vehicles - distance⁷

4.7.1 MATHEMATICS

4.7.2 Mathematics in the world around us

4.7.3 EDUCATOR SECTION

4.7.4 Memorandum

4.7.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- Integration of Themes:
- **Social justice:** The story of the secret signs shows how history can be important. What are the advantages of knowing things about the past?

Learners can divide into groups, visit the library and do more research on the origin of our number system, the Roman numerals, etc.

Learners can do projects on Mathematics found in nature, in the classroom and in the home. They learn to work together in a team, listen to one another and to share ideas.

Discuss whether so called “bargains” are always bargains. What is your attitude towards “sales” in shops? Is it always necessary to give / receive birthday presents? Why do you give presents? When would **not giving** presents be acceptable?

-
- With the inclusion of the story of the secret sign at this stage, learners are able to understand the significance of the “0” as “place holder” (integrated with Literacy).
- The patterns with addition and subtraction of 6, 7, 8 and 9 are emphasised.
- Telling the time in minutes become easy as learners count the minutes in 5’s.
- Codes are used to find the answer to a puzzle.
- As preparation for the Christmas celebrations, the month of December is used for activities involving the calendar.
- Module 8 concludes with a game where crackers with number sentences are matched to lights on the Christmas tree.

⁷This content is available online at <<http://cnx.org/content/m32497/1.1/>>.

4.7.6 LEANER SECTION

4.7.7 Content

4.7.7.1 ACTIVITY: Place value [LO 1.5, LO 1.9, LO 3.1]

- Read the story of the secret sign.

(“History of numbers”, MacDonald’s First Library, “Number”)

Abelard was a monk who lived in the twelfth century A.D. He lived in England.

Abelard loved to solve number puzzles.

He used Roman figures such as these with which to count:

I, II, III, IV, V, VI, VII, VIII, IX, X

One day some Arab merchants told Abelard about a secret sign and nine numbers used by the Arabs for counting. They said any total could be written using nine numbers and the secret sign.

One night Abelard climbed over the wall of the monastery in England and set off to Cordova in Spain. It took him many months to get there and to learn the language. After many exciting and dangerous adventures, he returned to England bringing with him the Arabs’ secret. He used the Arabic numbers 1, 2, 3, 4, 5, 6, 7, 8 and 9 AND the “0” - the secret sign - as a placeholder. Making use of the secret sign “0” he could write any number.

The Arabs learnt much from the Hindus. So Abelard returned to England with the new numbers and the secret sign.

- Our number system, which we use today, is really a combination of the work of the Arabs and the Hindus.
- When we draw 20 like this,

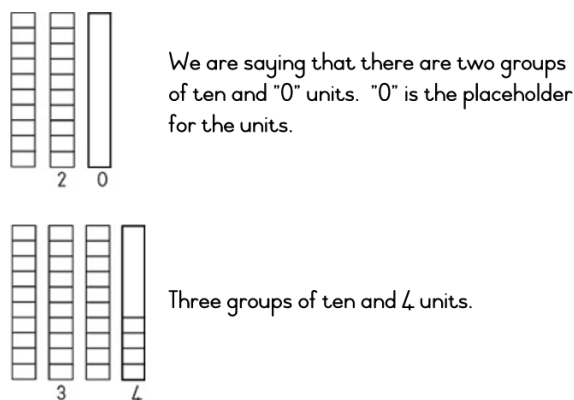


Figure 4.30

- Draw the picture numbers for:

4.7.7.1.1 Values and places

- Look at:

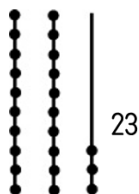


Figure 4.31

The value of 23, when renamed, is $20 + 3$

The place value of the 2 in 23 is 2 tens and the place value of the 3 in 23 is 3 units.

	Tens	Units	
	2	3	
What is the value of:	61	(rename) +
	39	.....
	72	.....
	80	.....
	58	.....
What is the place value of the numbers underlined?			
	<u>3</u> 9	.....
	<u>7</u> 2	.....
	<u>8</u> 0	.....
	<u>5</u> 8	.....
	<u>4</u> 4	.....
	<u>4</u> 4	.....

Figure 4.32

LO 1.5	
--------	--

Table 4.36

4.7.7.1.2 Mathematics in shape

- Work in groups of 4.
- Here is the key to the sums.

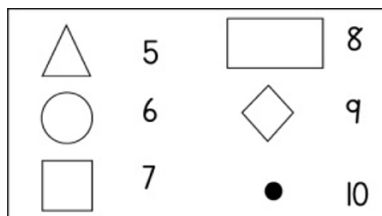


Figure 4.33

$$\begin{aligned}
 \triangle + \bigcirc &= \underline{5} + \underline{\quad} = \underline{\quad} \\
 \square + \square &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \diamond + \bullet &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \triangle + \bullet &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \square + \triangle &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \square + \bigcirc &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \triangle + \bullet &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \bullet \bullet - \triangle &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \diamond - \diamond &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \square - \bullet &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \square - \square &= \underline{\quad} + \underline{\quad} = \underline{\quad} \\
 \triangle - \triangle &= \underline{\quad} + \underline{\quad} = \underline{\quad}
 \end{aligned}$$

Figure 4.34

LO 1.9	LO 3.1	
--------	--------	--

Table 4.37

- Work with a partner.
- Use this key to make up your own sums in shapes. Use “+”, “-” and “x”.

- Ask someone in the class to write in the answers. Mark the sums.

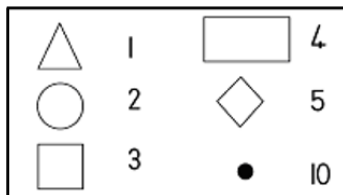


Figure 4.35

1.

2.

3.

4.

5.

6.

7.

How many were correct? -----

Name: -----

4.7.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.5: We know this when the learner recognises the place value of digits in whole numbers to at least 2-digit numbers;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.1: We know this when the learner recognises, identifies and names two-dimensional shapes and three-dimensional objects in the school environment and in pictures.

4.8 Patterns⁸

4.8.1 MATHEMATICS

4.8.2 Mathematics in the world around us

4.8.3 EDUCATOR SECTION

4.8.4 Memorandum

4.8.5 Critical and developmental outcomes:

The learners must be able to: _____

⁸This content is available online at <<http://cnx.org/content/m32498/1.1/>>.

1. identify and solve problems and make decisions using critical and creative thinking;
 2. work effectively with others as members of a team, group, organisation and community;
 3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
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- Integration of Themes:
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- Telling the time in minutes become easy as learners count the minutes in 5’s.
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- As preparation for the Christmas celebrations, the month of December is used for activities involving the calendar.
- Module 8 concludes with a game where crackers with number sentences are matched to lights on the Christmas tree.

4.8.6 LEARNER SECTION

4.8.7 Content

4.8.7.1 ACTIVITY: Patterns [LO 1.8, LO 1.9, LO 1.11, LO 1.12, LO 2.2, LO 2.4]

- Discover the pattern and complete it.
- Tell your friend what you have discovered.

$$\begin{array}{l}
 9 + 1 = 10 \\
 9 + 2 = \dots\dots \\
 9 \\
 8 + 2 = 10 \\
 8 + 3 = \dots\dots
 \end{array}$$

8
7 + 3 = 10
7 + 4 =
7
6 + 4 = 10
6 + 5 =
6
18 - 9 = 9
17 - 9
16
17 - 8 =
16 - 8 =
15
16 - 7 =
15 - 7 =
14
15 - 6 =
14 - 6 =
13
9 + 5 =
1 9 + 5
29 + 5
39
49
8 + 6 =
18 + 6
28
38
48
7 + 7 =
1 7 + 7 =
27
37
47
8 + 8 =
18 + 8 =
28
38
48

LO 1.8		LO 1.11		LO 2.4	
--------	--	---------	--	--------	--

Table 4.38

- Do you remember the pattern?

+ 9	- 9
10	10
19	19
29	29
59	59
89	87
39	35
69	68
49	44
79	72
99	99

Figure 4.36

-
- Complete the pattern:

4, (+9) 13, +9 , , ,
 50, (-9) , , , ,

LO 1.8		LO 2.2	
--------	--	--------	--

Table 4.39

+ 9	- 9
10	10
7	19
6	14
8	11
9	17
4	18
2	15
5	16
1	12
0	13

Figure 4.37

- Check with a friend to compare your answers.

LO 1.9		LO 1.12		LO 2.2	
--------	--	---------	--	--------	--

Table 4.40

- Arrange these groups of numbers from the least to the most.
- Discuss the counting pattern that they make.
- Work in groups of four.

1. 60, 30, 90, 80, 40, 10, 50, 20, 70,

Counting pattern: _____

2. 23, 31, 27, 35, 25, 37, 29, 33,

Counting pattern: _____

3. 25, 13, 19, 7, 3 1, 1,

Counting pattern: _____

4. 40, 36, 28, 8, 20, 16, 4, 32, 1 2, 24,

Counting pattern: _____

4.8.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.8: We know this when the learner can perform calculations, using appropriate symbols, to solve problems;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems;

Assessment Standard 1.12: We know this when the learner checks the solution given to problems by peers.

Learning Outcome 2: The learner will be able to recognise, describe and represent patterns and relationships, as well as to solve problems using algebraic language and skills.

Assessment Standard 2.2: We know this when the learner copies and extends simple number sequences to at least 200;

Assessment Standard 2.4: We know this when the learner describes observed patterns.

4.9 Directions⁹

4.9.1 MATHEMATICS

4.9.2 Mathematics in the world around us

4.9.3 EDUCATOR SECTION

4.9.4 Memorandum

4.9.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
 2. work effectively with others as members of a team, group, organisation and community;
 3. organise and manage themselves and their activities responsibly and effectively;
 4. collect, analyse, organise and critically evaluate information;
 5. communicate effectively using visual, symbolic and/or language skills in various modes;
 6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
 6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
 7. reflect on and explore a variety of strategies to learn more effectively;
 8. participate as responsible citizens in the life of local, national, and global communities;
 9. be culturally and aesthetically sensitive across a range of social contexts;
 10. explore education and career opportunities; and develop entrepreneurial opportunities.
- Integration of Themes:
 - **Social justice:** The story of the secret signs shows how history can be important. What are the advantages of knowing things about the past?

Learners can divide into groups, visit the library and do more research on the origin of our number system, the Roman numerals, etc.

Learners can do projects on Mathematics found in nature, in the classroom and in the home. They learn to work together in a team, listen to one another and to share ideas.

⁹This content is available online at <<http://cnx.org/content/m32499/1.1/>>.

Discuss whether so called “bargains” are always bargains. What is your attitude towards “sales” in shops? Is it always necessary to give / receive birthday presents? Why do you give presents? When would **not** giving presents be acceptable?

-
- With the inclusion of the story of the secret sign at this stage, learners are able to understand the significance of the “0” as “place holder” (integrated with Literacy).
- The patterns with addition and subtraction of 6, 7, 8 and 9 are emphasised.
- Telling the time in minutes become easy as learners count the minutes in 5’s.
- Codes are used to find the answer to a puzzle.
- As preparation for the Christmas celebrations, the month of December is used for activities involving the calendar.
- Module 8 concludes with a game where crackers with number sentences are matched to lights on the Christmas tree.

4.9.6 LEARNER SECTION

4.9.7 Content

4.9.7.1 ACTIVITY: Directions [LO 1.6, LO 1.9, LO 1.11, LO 3.8]

- Travel along the lines and complete the routes:

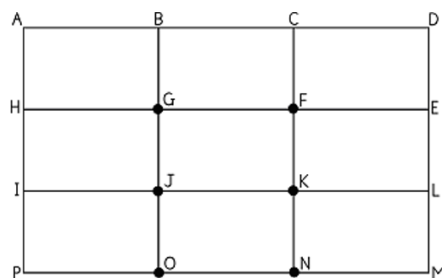


Figure 4.38

1. From M to C:

M, L, _____ C.
or

M, N, _____ C.

2. From M to A:

M, _____ A.

or

M, _____ A.

or

M, _____ A.

Table 4.41

- This is where my friends and I live.

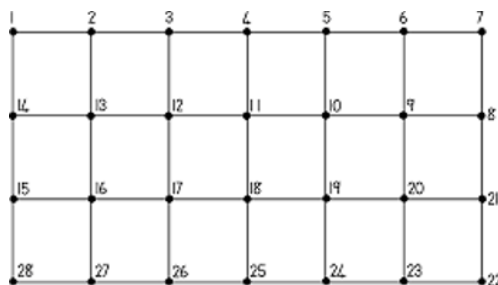


Figure 4.39

- Ek woon by 10.
- Ron woon by 5.
- Sisulu woon by 27.
- Piet woon by 22.

Om by my maats te gaan kuier moet ek rigtings ken. Ek gebruik hierdie tekens.

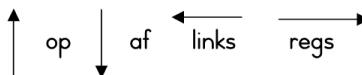


Figure 4.40

- As ek by Ron wil gaan kuier, moet ek op stap van 10 tot 5.
- Skryf die rigtings (tekens) van my huis by 10 na:
- Sisulu se huis:
- Piet se huis:
- Bespreek of daar ander roetes ook is om by hulle te kom.

LO 3.8	
--------	--

Table 4.42

- Travel long the lines and complete the routes.

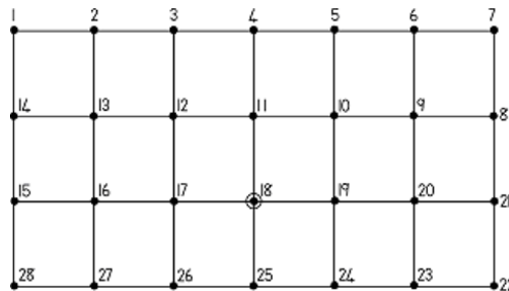


Figure 4.41

- My friends have to travel to 18 where the school is.
- Pat travels from 28 to 18.

This is her route: 28..... ..

If each number is 2 km from the next number on the route, then Pat travels _____ km to school.

If she pays 20c for every 2 km she will pay _____ to get to school. Sam's route is from 7 to 18.

7, _____
 His route is _____ km.
 He pays _____ to school.
 He pays _____ to school and back home.

- Does Sam pay more or less than Pat? _____
- Give a reason for your answer. _____

LO 1.6		LO 1.11		LO 3.8	
--------	--	---------	--	--------	--

Table 4.43

- Complete.

Pat goes to school on this bus.

1. This bus travels on route 2. (only 2's are used in the number sentences).

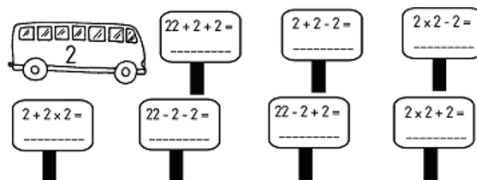


Figure 4.42

Mo goes to school on this bus.

2. This bus travels on route 3. Write the number sentences on the stops. Use only 3's.

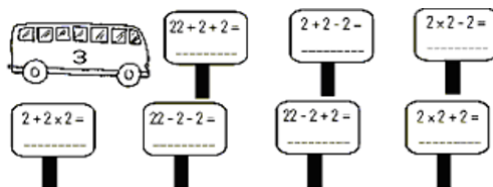


Figure 4.43

Ann goes to school on this bus.

3. This bus travels on route 4. Write the number sentences, using only 4's.

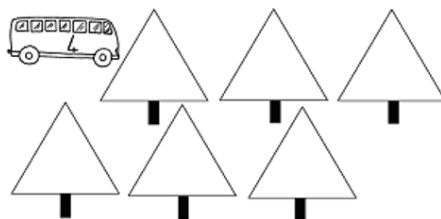


Figure 4.44

LO 1.9	
--------	--

Table 4.44

4.9.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.6: We know this when the learner solves money problems involving totals and change in rand and cents;

Assessment Standard 1.9: We know this when the learner performs mental calculations;

Assessment Standard 1.11: We know this when the learner explains own solutions to problems;

Learning Outcome 3: The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

Assessment Standard 3.8: We know this when the learner understands directions.

4.10 Telling the time¹⁰

4.10.1 MATHEMATICS

4.10.2 Mathematics in the world around us

4.10.3 EDUCATOR SECTION

4.10.4 Memorandum

4.10.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- Integration of Themes:
- **Social justice:** The story of the secret signs shows how history can be important. What are the advantages of knowing things about the past?

Learners can divide into groups, visit the library and do more research on the origin of our number system, the Roman numerals, etc.

Learners can do projects on Mathematics found in nature, in the classroom and in the home. They learn to work together in a team, listen to one another and to share ideas.

Discuss whether so called “bargains” are always bargains. What is your attitude towards “sales” in shops? Is it always necessary to give / receive birthday presents? Why do you give presents? When would **not giving** presents be acceptable?

-
- With the inclusion of the story of the secret sign at this stage, learners are able to understand the significance of the “0” as “place holder” (integrated with Literacy).
- The patterns with addition and subtraction of 6, 7, 8 and 9 are emphasised.
- Telling the time in minutes become easy as learners count the minutes in 5’s.
- Codes are used to find the answer to a puzzle.
- As preparation for the Christmas celebrations, the month of December is used for activities involving the calendar.
- Module 8 concludes with a game where crackers with number sentences are matched to lights on the Christmas tree.

¹⁰This content is available online at <<http://cnx.org/content/m32500/1.1/>>.

4.10.6 LEARNER SECTION

4.10.7 Content

ACTIVITY: Telling the time [LO 4.1, LO 4.3]

- Dad gave Des a present.
- Now he can tell the time.
- He counts the minutes past the hour in 5's.
- He counts the minutes to the next hour in 5's.
- He finds out that there are _____ minutes in an hour.



Figure 4.45

- As the long minute hand moves to 1, Des says, "Five past one."
- As the long minute hand moves to 2, Des says, " past "
- As the long minute hand moves to 3, Des says, " minutes past". This can also be "a quarter past one."

What time is it now?

_____ minutes past _____
 _____ minutes past _____
 _____ minutes past _____

- Des must meet Mike and Tom to go shopping for presents.
- He must meet Mike and Tom at 2 o'clock.
- He watches the long hand and counts the minutes to 2 o'clock.
- He says:

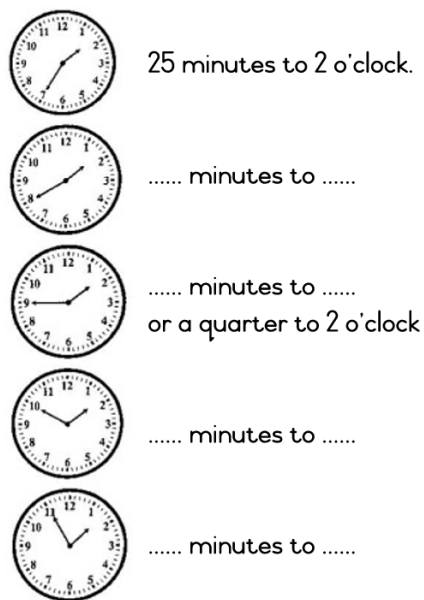


Figure 4.46

“Hip, hip hooray,” says Des.
 Only more minutes to 2 o'clock.
 And off he went to meet his friends.

LO 4.1		LO 4.3	
--------	--	--------	--

Table 4.45

4.10.8 Assessment

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assesseringstandaard 4.1: We know this when the learner reads analogue and digital clock time in hours and minutes;

Assesseringstandaard 4.3: We know this when the learner calculates elapsed time.

4.11 Adding and subtracting¹¹

4.11.1 MATHEMATICS

4.11.2 Mathematics in the world around us

4.11.3 EDUCATOR SECTION

4.11.4 Memorandum

4.11.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
7. reflect on and explore a variety of strategies to learn more effectively;
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- Integration of Themes:
- **Social justice:** The story of the secret signs shows how history can be important. What are the advantages of knowing things about the past?

Learners can divide into groups, visit the library and do more research on the origin of our number system, the Roman numerals, etc.

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Discuss whether so called “bargains” are always bargains. What is your attitude towards “sales” in shops? Is it always necessary to give / receive birthday presents? Why do you give presents? When would **not giving** presents be acceptable?

-
- With the inclusion of the story of the secret sign at this stage, learners are able to understand the significance of the “0” as “place holder” (integrated with Literacy).
- The patterns with addition and subtraction of 6, 7, 8 and 9 are emphasised.
- Telling the time in minutes become easy as learners count the minutes in 5’s.
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- As preparation for the Christmas celebrations, the month of December is used for activities involving the calendar.
- Module 8 concludes with a game where crackers with number sentences are matched to lights on the Christmas tree.

¹¹This content is available online at <<http://cnx.org/content/m32501/1.1/>>.

4.11.6 LEARNER SECTION

4.11.7 Content

ACTIVITY: Adding and subtracting [LO 1.6, LO 1.10, LO 1.11]

- Read these advertisements. Complete them.

Ping Pong balls
for sale.
20 for 80c.
10 for ____c.

Soccer balls
for sale.
2 for R46.
1 for R_____.

Diving sticks
for sale.
10 for 45c.
20 for ____c.

Fishing nets
for sale.
3 for 60c.
1 for ____c.

Goggles
for sale.
1 pair for R34.
2 pairs for R_____.

Beach balls
for sale.
2 for R84.
1 for R_____.

Beach bats
for sale.
2 for R32.
4 for R_____.

Buckets for
half price.
~~68c~~
____c.

Figure 4.47

LO 1.6	LO 1.10
--------	---------

Table 4.46

- My friends went shopping for bargains (see p. 20). Tell a friend how you got the answer.
- Voltoo!

1. Mo bought 5 ping pong balls for c and one fishing net forc.
She paid =c
2. Bob bought 4 beach bats for R and 1 pair of goggles for R
He paid R + R =
3. Mom gave Des R1 to buy diving sticks.
He bought diving sticks for c.
He took change home.

4. Tom paid R for 2 beach balls. He also bought 5 ping pong balls for c.
He paid R + c. =
5. What will 3 pairs of goggles cost if the price is R30 for 1 pair?

LO 1.6		LO 1.10		LO 1.11	
--------	--	---------	--	---------	--

Table 4.47

- Here is a present for you.
- Write the answers of the number sentences to find out what the code is for:

A = _____
 B = _____
 C = _____
 D = _____
 E = _____
 F = _____
 G = _____
 H = _____
 I = _____
 J = _____
 K = _____
 L = _____



Figure 4.48

A $36 + 5 =$ _____
 B $28 - 3 =$ _____
 C $94 - 3 =$ _____
 D $9 + 8 =$ _____
 E $17 - 7 =$ _____
 F $12 + 12 =$ _____
 G $6 + 6 + 6 =$ _____
 H $6 \times 2 =$ _____
 I $3 \times 3 =$ _____
 J $67 - 5 =$ _____
 K $50 + 20 =$ _____
 L $88 - 80 =$ _____

- Use the code to find out what is in the box.

Code: 25, 41, 8, 8

Answer:

- Check with a friend to see what he found in the box.

4.11.8 Assessment

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.6: We know this when the learner solves money problems involving totals and change in rand and cents;

Assessment Standard 1.10: We know this when the learner uses the following techniques:

- 1.10.1 building up and breaking down numbers;
- 1.10.2 doubling and halving;
- 1.10.3 number-lines;
- 1.10.4 rounding off in tens.

Assessment Standard 1.11: We know this when the learner explains own solutions to problems;

4.12 Calendar¹²

4.12.1 MATHEMATICS

4.12.2 Mathematics in the world around us

4.12.3 EDUCATOR SECTION

4.12.4 Memorandum

4.12.5 Critical and developmental outcomes:

The learners must be able to:

1. identify and solve problems and make decisions using critical and creative thinking;
2. work effectively with others as members of a team, group, organisation and community;
3. organise and manage themselves and their activities responsibly and effectively;
4. collect, analyse, organise and critically evaluate information;
5. communicate effectively using visual, symbolic and/or language skills in various modes;
6. use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
6. demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation;
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8. participate as responsible citizens in the life of local, national, and global communities;
9. be culturally and aesthetically sensitive across a range of social contexts;
10. explore education and career opportunities; and develop entrepreneurial opportunities.

- Integration of Themes:
- **Social justice:** The story of the secret signs shows how history can be important. What are the advantages of knowing things about the past?

¹²This content is available online at <<http://cnx.org/content/m32502/1.1/>>.

Learners can divide into groups, visit the library and do more research on the origin of our number system, the Roman numerals, etc.

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Discuss whether so called “bargains” are always bargains. What is your attitude towards “sales” in shops? Is it always necessary to give / receive birthday presents? Why do you give presents? When would **not giving** presents be acceptable?

-
- With the inclusion of the story of the secret sign at this stage, learners are able to understand the significance of the “0” as “place holder” (integrated with Literacy).
- The patterns with addition and subtraction of 6, 7, 8 and 9 are emphasised.
- Telling the time in minutes become easy as learners count the minutes in 5’s.
- Codes are used to find the answer to a puzzle.
- As preparation for the Christmas celebrations, the month of December is used for activities involving the calendar.
- Module 8 concludes with a game where crackers with number sentences are matched to lights on the Christmas tree.

4.12.6 LEARNER SECTION

4.12.7 Content

4.12.7.1 ACTIVITY: Calendar [LO 1.1, LO 1.2, LO 1.3, LO 1.9, LO 4.2]

- Here is a calendar for December.

S	M	D	W	D	V	S
	1	2	3	4	5	6
7	8	9	10			
	15					
					26	
			31			

Figure 4.49

- Write in the missing numbers.
- M stands for
- F stands for
- The 10th of December is on a
- Mo’s birthday is on the 15th of December. How many days is that before Christmas? days.

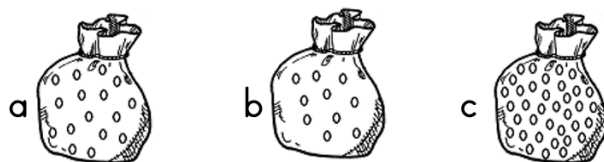


Figure 4.51

-
1. Packet C had the _____ most/least
 2. Packet B had the _____ most/least
 3. Packet A had _____ (more/less) than C.
 4. Packet B had _____ (more/less) than A.

- Now count the peanuts in:

A = _____ B = _____ C = _____

- Check and see whether your answers in 1, 2, 3 and 4 were wrong yes/no or correct yes/no
- Draw 63 peanuts in this packet.

Arrange them in groups of ten.



Figure 4.52

LO 1.1	LO 1.3	
--------	--------	--

Table 4.50

- Make 6 different numbers each time.
- Write their number names.

1. Use only the digits: 1, 2 and 3.

1 2 twelve 12
before after

..... -
..... -
..... -
..... -
..... -

2. Use only the digits: 9, 4 and 8.

..... -
..... -
..... -
..... -
..... -
..... -

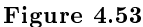
3. Use only the digits: 6, 3 and 5.

..... -
..... -
..... -
..... -
..... -
..... -

LO 1.3	
--------	--

Table 4.51

- Play with a friend.
- Take turns to match a light to a cracker.
- Colour your crackers in red.
- Your friend can use yellow.

Table 4.52

Learning Outcome 1: The learner will be able to recognise, describe and represent numbers and their relationships, and to count, estimate, calculate and check with competence and confidence in solving problems.

Assessment Standard 1.2: We know this when the learner counts forwards and backwards in:

- Assessment Standard 1.3:** We know this when the learner knows and reads number symbols from 1 to at least 200 and writes number names from 1 to at least 100;

Learning Outcome 4: The learner will be able to use appropriate measuring units, instruments and formulae in a variety of contexts.

Assessment Standard 4.2: We know this when the learner names in order the days of the week and the months of the year.

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